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FOOD FOR THE SICK

A MANUAL FOR PHYSICIAN AND PATIENT

BY

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PREFACE

IN the preparation of this volume we have supplemented our own experience by free use of the current literature in text-books and magazines. Since the nature of the book precludes extensive bibliographical references, we take this opportunity of acknowledging our indebtedness. To many of our colleagues on the staff of Michael Reese Hospital we owe debts of gratitude for suggestions and help; Dr. Joseph C. Friedman has given us much valuable assistance; the chapter on Diseases of the Heart was planned by Dr. Sidney Strauss; the one on Diseases of the Skin was outlined by Dr. Phillip F. Shaffner. The publishers have constantly extended courtesies for which we are sincerely thankful.

THE AUTHORS.

CHICAGO, ILL.,
July, 1917.



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FOOD FOR THE SICK

CHAPTER I.

INTRODUCTION

The conceptions behind this little book are (1) that the patient may justly demand more explicit instructions in diet than he has hitherto received; (2) the physician needs a practical guide book for imparting such instructions, especially when the patient must rely on himself or his family for the preparation of his diet. It has seemed to us that many diseases in which food plays an important role in treatment do not progress favorably because of the inability of the patient to grasp in terms of the kitchen what the physician says in terms of the laboratory. A cook book does not fill this need any more than does an elaborate treatise on the science of dietetics, which many physicians find difficulty in mastering.

As an example, the meaning of a "low-nitrogenous, salt-free diet" is rarely so clear that a patient with Bright's disease may leave an institution, where he has had an elaborate cure, with definite knowledge of what he is to eat in the future. He must either follow rather blindly the diet sheets of his cure, or ask for instructions which to be successful must go into questions of cause and effect, of food values, of building menus, of special cookery. In giving de-

tailed instructions the physician of to-day assumes a standard of intelligent co-operation with the patient which is far removed from the attitude of mystery too often adopted in discussions of diet and disease. One thing is certain: Good results in treatment can not be attained as long as food as a means of cure is shrouded in mystery, as long as the patient is ignorant of the fundamental principles of his cure; he must learn how to make the science of nutrition and the art of cooking work hand in hand for his good.

Probably both physician and patient will ask: Can this be done with safety? The physician may doubt his own ability to impart implicit instructions, the patient may doubt his own intelligence. But to us the answer to these doubts has been found in the experiences in the past years acquired in the treatment of diabetes mellitus. Where formerly we advised our patients in general terms, gave them diet lists and told them to report occasionally, in more recent days we have instructed our patient in the details of the disease, the relation of articles of diet to various effects; we have given him enough of the fundamental science to at least control his own case; we have guided him through the intricacies of food values; we have shown him how to figure equivalents; we have taken him or his wife through the diet kitchen—and on the whole have educated him to be our assistant rather than merely our blind follower. Now, if this revelation has been possible in the *most difficult* of all dietary diseases, it ought to be possible in *all* diseases in which the diet

feature is important. We believe that this is not only possible, but most desirable, and in our book we hope to offer the bridge over which safe passage may be made from institutional treatment, with all its controls, to home treatment, with all its apparent dangers.

Since this book is to be written for the perusal of physician and patient, it must be constructed from the patient's as well as from the physician's point of view, and written in language which the patient will be able to understand. At the same time, it must adhere to the strictest tenets of true science. But we shall avoid the mistake of confusing science with theory, and theory will be brought in only when absolutely necessary to prove a fact. For our purpose, we might imply by science the "knowing why", and by art the "knowing how" of feeding. To know *how* to diet for obesity is not the same thing as to know *why* the diet is prescribed; but we shall consider that we have not filled our purpose unless we can show both the "why" and the "how."

The plan of the book, then, must be very definite. Each chapter will be devoted to a single subject, and we shall first discuss the disease or the condition in such a way as to make plain the *reasons* for the dietary rules which follow. Complete details of the diet will then be given, with instructions in preparing foods and many menus. The first chapter will be devoted to a description of the normal use of food, and to lessons in practical application of food tables in building any kind of special menus. The succeeding chapters on

disease will aim to be scientific and practical, and to be the means of assuring confidence to both physician and patient: to the physician the confidence which goes with an assurance that his instructions are in "black and white"; to the patient the confidence which goes with knowledge.

CHAPTER II.

FOOD AND ITS USES

It is a fact that in many diseases diet has largely taken the place of medication, and for this reason too much stress cannot be laid upon the value of a knowledge of the different classes of foods and the role which they play in nutrition of the body. A very pertinent question then arises: What is food? Food is anything which, when taken into the body, is able to furnish heat or energy or material for repairing waste of the body and of building new tissue.

No clear ideas of either the need or the regulation of diets in disease can be possible to one who has not some conception of the use of food by the normal individual. The mere putting of food in the stomach through the mouth is only a preliminary step, but most of us do not stop to consider why we eat, why we select certain foods to form our normal day's diet, or what happens to the foods we do eat. By what processes are foods handled so that part leaves the body in the stools and part is used for the nourishment of its different parts? All these questions, and more, arise as soon as one attempts to study the reasons for diet in any special disease.

Very briefly, then, the use of food by the body will be explained. The first step in this process is digestion, and by digestion is meant the preparation of food in the mouth, the stomach, and the intestines (the

gastro-intestinal canal), so that it can be taken up or absorbed by the blood and assimilated by the body. Let us take a piece of roast beef, for example. In the condition in which it is put into the mouth the body can not use roast beef for its needs, but by the time the digestive juices in the stomach and intestines have done their work the beef has been put in shape so that what the body can use is easily taken up by the blood, while the portion of no use to the body is passed along as feces.

After food has been digested and its utilizable portion has been assimilated by the body, it has two main duties to perform. One, and perhaps the most important duty, is to furnish heat and energy to the body, in exactly the same way as coal furnishes the energy for a furnace or gasoline for an automobile.

In the many activities of all kinds which fill a person's life he is constantly using energy. Every time a man walks or raises his arm he is performing work, and in this respect he is like all machines which must have fuel if they are to work. The food a man eats supplies the fuel for his work, and the amount of fuel he needs will depend to a great extent on the amount of work he does. This, of course, explains why persons taking active exercise or doing an unusual amount of work have an increased appetite; the appetite being the signal that extra food is needed.

But food has another duty to perform which is different from supplying fuel to an engine. Unlike an engine, the human body can use its own parts as fuel,

and would soon burn up its own tissues if food were not supplied to replace what is lost in ordinary activities. Everybody knows how in starvation and in certain so-called wasting diseases the body loses weight. The reason the healthy body does not lose weight is that the food which has been digested and taken up by the blood can be and is used by the body to prevent and repair waste as it occurs. If no food is given, the body "eats" its own parts in order to furnish food for its activities, and there is considerable waste. But when foods of the proper sort are given, there is no need for this, and consequently there is very little waste. However, there is always some loss of the body, and this loss is supplied by certain elements in the food.

In all steps by which the body uses food chemical reactions occur just as they do in a chemical laboratory. Most of these are extremely complicated, and it is unnecessary to discuss them here. The formation of urine represents an important principle in the general chemistry of nutrition, and should be explained. We have already stated that food is taken up by the blood after digestion, and is in such shape that it can be used by the body for two main purposes: (1) to supply fuel energy; (2) to repair waste and build tissue. We have further said that all this is actually a complex chemical process. Now the blood, in addition to carrying digested food to the body organs, takes away from these organs what is left after the chemical processes are finished; and this left-over material has to get out of the body. The blood carries

this to the kidneys, where it is passed out of the body as urine. The urine, therefore, represents the *results* of the chemical processes in the body, while the feces represents merely the actual part of the food which does not get out of the alimentary canal. The chemical end-products are passed in the urine in solution in water, which forms by far the largest amount of any urinary constituent. The water comes either from the water we drink or from the food.

The name used to describe these chemical processes by which the body changes food and uses it is "metabolism." This is a general name, used to describe the breaking down of food and its rebuilding in the regular course of its use by the body. Diabetes is a *disease of metabolism*, because patients with diabetes can not use certain foods as a healthy person does, and as a result sugar appears in the urine.

Following this brief review of the use of food by the human body, it is necessary to interpret the meaning of certain terms used in defining foods.

The body is composed of certain chemical elements. Some of the most important ones are carbon, hydrogen, oxygen, nitrogen, iron, calcium, phosphorus and sulphur. As the body grows or is destroyed by life processes, these must be again supplied, according to the demands of the body. These elements are supplied to the body by the food which we eat. In different foods we find different elements and different combinations of elements. For instance, water is a combination of hydrogen and oxygen.

Generally speaking, all foods are classified under five main groups or headings: (1) Water. (2) Protein. (3) Fat. (4) Carbohydrate. (5) Mineral matter or salts.

Practically all food substances contain water; some, such as vegetables, as much as 90 per cent.; others, such as the cereals, a small amount. The other food groups are complex chemical compounds, which differ from each other in a specific chemical way. Yet it would be difficult to give understandable definitions in chemical terms, and perhaps a better idea of what the names mean will be obtained by a citation of examples. Protein, for instance, is the substance forming the main part of meat of all kinds, including chicken and fish. The white of egg is almost pure protein. All proteins are characterized by the presence of the element nitrogen. Certain vegetables (the legumes), such as peas and beans, contain a somewhat high percentage, but most vegetables contain only a negligible amount of protein.

Carbohydrates are found mainly in "starchy" foods, such as *all flour* preparations, the cereals—like oatmeal, rice, farina. Sugar is a pure carbohydrate. Vegetables contain a varying amount of carbohydrate; some, such as asparagus, lettuce, tomatoes, having about 3 per cent.; others, such as corn or beans, running as high as 20 per cent. Potatoes are also a carbohydrate food, as most of the solid matter in potato is carbohydrate. The fruits, like the vegetables, contain car-

bohydrate in different amounts, grape fruit being very low, plums and bananas very high.

The meaning of fat is evident to all, and the most common fat used is butter, which is almost pure fat. Cream is often spoken of in terms of percentage of butter fat as "18 per cent. cream," "20 per cent. cream." Also the fats in meat, the fat in bacon and pork are apparent examples of "fat" food. All oils, such as olive oil, cottonseed oil, are pure fats, and certain nuts are particularly rich in fat.

All these food elements have definite purposes in the body. Most foods contain a certain amount of each kind (see below, page 22), and a well-regulated normal diet will contain the amounts of each necessary to maintain the body at its highest point of efficiency. The protein food makes up the repair loss, the waste of the body tissues. Graham Lusk¹ says: "Protein has one property out of all proportion to that possessed by the other food stuffs: it very largely increases the production of heat in the body. Individuals maintained on a low protein diet may suffer intensely from cold. A good piece of beefsteak or roast beef will put the heat production on a higher level, and a person going out of doors on a cold day after a meal high in protein does not feel the cold. For the same reason, on a hot summer day, meat will be avoided." Carbohydrate is the main fuel of the body as it is readily burnt to form heat and energy. Fat is also burned, but is also used as storage ma-

¹ The Fundamental Basis of Nutrition. Yale University Press. 1915.

terial, and is laid up as body fat. Water is necessary to replace the water in the body which is constantly being lost.

In addition to these most important groups is another, the mineral salts, or ash, which is absolutely necessary for growth, and which must be supplied properly to nourish certain parts of the body, as the bones, the teeth. The mineral salts are distinguished from the other food substances in that they are inorganic chemical compounds; that is, they do not contain the element carbon. In growing children they are necessary for complete growth; without calcium (lime) the bones do not develop; in adult life they also play another role, the exact nature of which is not quite understood. Salt is the commonest mineral used, and the craving for it by most healthy persons is an indication of its requirement by the body. Almost all foods contain small amounts of mineral salts, and a diet which contained none would not only be distasteful, but would sooner or later show its effect on the general condition of a person.

These five groupings, known as food nutrients, then, form the most important divisions of food, and, as said before, are all necessary to a well-regulated diet.

As we have said that one function of food is to furnish heat for the body, we are much interested in knowing the amount of heat which different foods will furnish, so that we can more wisely choose our food according to occupation, season, climate, etc. The heat value of different foods has been determined

by an instrument called the calorimeter. A small amount of food, one gram, is placed in a ball-like apparatus and immersed in water. The food is burned by electricity and a thermometer registers the change in the temperature of the water caused by the burning of the food. The standard unit of heat production is the calorie. This is the amount of heat that is necessary to raise the temperature of one pound of water 4° F. Experiments have proved that one gram of protein will produce 4.1 calories of heat; 1 gram of fat, 9.3 calories; 1 gram of carbohydrate, 4.1 calories.

The question which now naturally arises is how to tell the proportions of each food nutrient to be found in any particular food. Fortunately, all this work has been done by analytical chemists, and the Department of Agriculture of the U. S. Government has issued Bulletins, which give complete analyses of most American food stuffs. The two most valuable of these are Farmer's Bulletin, No. 28, which can be obtained by sending twelve cents to the Department of Agriculture, and Farmer's Bulletin, No. 142, which is in part copied here.

Average composition of common American food products.

Food materials (as purchased).	Refuse.	Water	Pro- tein.	Fat.	Carbo- hy- drates.	Ash.	Fuel value per pound.
	Per ct	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Calo- ries.
Animal Food.							
Beef, fresh:							
Chuck ribs	16.3	52.6	15.5	15.0	.....	0.8	910
Flank	10.2	54.0	17.0	19.0	.....	.7	1,105
Loin	13.3	52.5	16.1	17.5	.....	.9	1,025

Average composition of common American food products—Con.

Food materials (as purchased).	Refuse.	Water.	Pro- tein.	Fat.	Carbo- hy- drates.	Ash.	Fuel value per pound.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Calo- ries.
Animal Food—Con.							
Beef, Fresh—Con.							
Porterhouse steak.	12.7	52.4	19.1	17.9	.....	.8	1,100
Sirloin steak	12.8	54.0	16.5	16.1	.....	.9	975
Neck	27.6	45.9	14.5	11.9	.....	.7	1,165
Ribs	20.8	43.8	13.9	21.2	.....	.7	1,135
Rib rolls .....	.....	63.9	19.3	16.7	.....	.9	1,055
Round	7.2	60.7	19.0	12.8	.....	1.0	890
Rump	20.7	45.0	13.8	20.2	.....	.7	1,090
Shank, fore	36.9	42.9	12.8	7.3	.....	.6	545
Shoulder and clod.	16.4	56.8	16.4	9.8	.....	.9	715
Fore quarter.....	18.7	49.1	14.5	17.5	.....	.7	995
Hind quarter	15.7	50.4	15.4	18.3	.....	.7	1,045
Beef, corned, canned, pickled, and dried:							
Corned beef ...	8.4	49.2	14.3	23.8	.....	4.6	1,245
Tongue, pickled ..	6.0	58.9	11.9	19.2	.....	4.3	1,010
Dried, salted, and smoked	4.7	53.7	26.4	6.9	.....	3.9	790
Canned boiled beef .....	.....	51.8	25.5	22.5	.....	1.3	1,410
Canned corned beef .....	.....	51.8	26.3	18.7	.....	4.0	1,270
Veal:							
Breast	21.2	52.0	15.4	11.0	.....	.8	745
Leg	14.2	60.1	15.5	7.9	.....	.9	625
Leg cutlets	3.4	63.3	20.1	7.5	.....	1.0	695
Fore quarter	24.5	54.2	15.1	6.0	.....	.7	535
Hind quarter	20.7	56.2	16.2	6.6	.....	.8	580
Mutton:							
Flank	9.9	39.0	13.8	36.9	.....	.6	1,770
Leg, hind	19.4	51.2	15.1	14.7	.....	.8	890
Loin chops	16.0	42.0	13.5	28.3	.....	.7	1,415
Fore quarter	21.2	41.6	12.3	24.5	.....	.7	1,235
Hind quarter, with- out tallow	17.2	45.4	13.8	23.2	.....	.7	1,210
Lamb:							
Breast	19.1	45.5	15.4	19.1	.....	.8	1,075
Leg, hind	17.4	52.9	15.9	13.6	.....	.9	860
Pork, fresh:							
Ham	10.7	48.0	13.5	25.9	.....	.8	1,320
Loin chops	19.7	41.8	13.4	24.2	.....	.8	1,245
Shoulder	12.4	44.9	12.0	29.8	.....	.7	1,450
Tenderloin .....	.....	66.5	18.9	13.0	.....	1.0	895
Pork, salted, cured, and pickled:							
Ham, smoked ...	13.6	34.8	14.2	33.4	.....	4.2	1,635
Shoulder, smoked ..	18.2	36.8	13.0	26.6	.....	5.5	1,335
Salt pork .....	.....	7.9	1.9	86.2	.....	3.9	3,555
Bacon, smoked	7.7	17.4	9.1	62.2	.....	4.1	2,715
Sausage:							
Bologna	3.3	55.2	18.2	19.7	.....	3.8	1,155

Average composition of common American food products—Con.

Food materials (as purchased).	Refuse.	Water.	Pro- tein.	Fat.	Carbo- hy- drates.	Ash.	Fuel value per pound.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Calo- ries.
Animal Food—Con.							
Sausage—Con.							
Pork		39.8	13.0	44.2	1.1	2.2	2,075
Frankfort		57.2	19.6	18.6	1.1	3.4	1,155
Soups:							
Celery, cream of.. ..		88.6	2.1	2.8	5.0	1.5	235
Beef		92.9	4.4	.4	1.1	1.2	120
Meat stew		84.5	4.6	4.3	5.5	1.1	365
Tomato		90.0	1.8	1.1	5.6	1.5	185
Poultry:							
Chicken, broilers ..	41.6	43.7	12.8	1.4	.....	.7	305
Fowls	25.9	47.1	13.7	12.3	.....	.7	765
Goose	17.6	38.5	13.4	29.8	.....	.7	1,475
Turkey	22.7	42.4	16.1	18.4	.....	.8	1,060
Fish:							
Cod, dressed	29.9	58.5	11.1	.2	.....	.8	220
Halibut, steaks or sections	17.7	61.9	15.3	4.4	.....	.9	475
Mackerel, whole ..	44.7	40.4	10.2	4.2	.....	.7	370
Perch, yellow, dressed	35.1	50.7	12.8	.7	.....	.9	275
Shad, whole	50.1	35.2	9.4	4.8	.....	.7	380
Shad, roe		71.2	20.9	3.8	2.6	1.5	600
Fish, preserved:							
Cod, salt	24.9	40.2	16.0	.4	.....	18.5	325
Herring, smoked ..	44.4	19.2	20.5	8.8	.....	7.4	765
Fish, canned:							
Salmon		63.5	21.8	12.1	.....	2.6	915
Sardines	*5.0	53.6	23.7	12.1	.....	5.3	950
Shellfish:							
Oysters, "solids".. ..		88.3	6.0	1.3	3.3	1.1	225
Clams		80.8	10.6	1.1	5.2	2.3	340
Crabs	52.4	36.7	7.9	.9	.6	1.5	200
Lobsters	61.7	30.7	5.9	.7	.2	.8	145
Eggs: Hens' eggs....	*11.2	65.5	13.1	9.3	.....	0.9	635
Dairy products, etc.:							
Butter		11.0	1.0	85.0	.....	3.0	3,410
Whole milk		87.0	3.3	4.0	5.0	.7	310
Skim milk		90.5	3.4	.3	5.1	.7	165
Buttermilk		91.0	3.0	.5	4.8	.7	160
Condensed milk ..		26.9	8.8	8.3	54.1	1.9	1,430
Cream		74.0	2.5	18.5	4.5	.5	365
Cheese, Cheddar ..		27.4	27.7	36.8	4.1	4.0	2,075
Cheese, full cream ..		34.2	25.9	33.7	2.4	3.8	1,885
Vegetable Food.							
Flour, meal, etc.:							
Entire-wheat flour.. ..		11.4	13.8	1.9	71.9	1.0	1,650
Graham flour		11.3	13.3	2.2	71.4	1.8	1,645

* Refuse, oil.

* Refuse, shell.

Average composition of common American food products—Con.

Food materials (as purchased)	Refuse.	Water.	Pro- tein.	Fat.	Carbo- hy- drates.	Ash.	Fuel value per pound.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Calo- ries.
Vegetable Food—Con.							
Flour, etc.—Con.							
Wheat flour, patent roller process—							
High-grade and medium		12.0	11.4	1.0	75.1	.5	1,635
Low grade		12.0	14.0	1.9	71.2	.9	1,640
Macaroni, vermi- celli, etc.		10.3	13.4	.9	74.1	1.3	1,645
Wheat breakfast food		9.6	12.1	1.8	75.2	1.3	1,680
Buckwheat flour...		13.6	6.4	1.2	77.9	.9	1,605
Rye flour		12.9	6.8	.9	78.7	.7	1,620
Corn meal		12.5	9.2	1.9	75.4	1.0	1,635
Oat breakfast food		7.7	16.7	7.3	66.2	2.1	1,800
Rice		12.3	8.0	.3	79.0	.4	1,620
Tapioca		11.4	.4	.1	88.0	.1	1,650
Starch					90.0		1,675
Bread, pastry, etc.:							
White bread		35.3	9.2	1.3	53.1	1.1	1,200
Brown bread		43.6	5.4	1.8	47.1	2.1	1,040
Graham bread		35.7	8.9	1.8	52.1	1.5	1,195
Whole-wheat bread		38.4	9.7	.9	49.7	1.3	1,130
Rye bread		35.7	9.0	.6	53.2	1.5	1,170
Cake		19.9	6.3	9.0	63.3	1.5	1,630
Cream crackers		6.8	9.7	12.1	69.7	1.7	1,925
Oyster crackers		4.8	11.3	10.5	70.5	2.9	1,910
Soda crackers		5.9	9.8	9.1	73.1	2.1	1,875
Sugars, etc.:							
Molasses					70.0		1,225
†Candy					96.0		1,680
Honey					81.0		1,420
Sugar, granulated					100.0		1,750
Maple sirup					71.4		1,250
†Vegetables:							
Beans, dried		12.6	22.5	1.8	59.6	3.5	1,520
Beans, Lima, shelled			68.5	7.1	.7	22.0	1.7
Beans, string		7.0	83.0	2.1	.3	6.9	.7
Beets		20.0	70.0	1.3	.1	7.7	.9
Cabbage		15.0	77.7	1.4	.2	4.8	.9
Celery		20.0	75.6	.9	.1	2.6	.8
Corn, green (sweet). edible portion			75.4	3.1	1.1	19.7	.7
Cucumbers		15.0	81.1	.7	.2	2.6	.4
Lettuce		15.0	80.5	1.0	.2	2.5	.8

† Plain confectionery not containing nuts, fruit, or chocolate.

‡ Such vegetables as potatoes, squash, beets, etc., have a certain amount of inedible material, skin, seeds, etc. The amount varies with the method of preparing the vegetables, and can not be accurately estimated. The figures given for refuse of vegetables, fruit, etc., are assumed to represent approximately the amount of refuse in these foods as ordinarily prepared.

Average composition of common American food products—Con.

Food materials (as purchased)	Refuse.	Water.	Pro- tein.	Fat.	Carbo- hy- drates.	Ash.	Fuel value per pound.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Calo- ries.
Vegetable Food—Con.							
Vegetables—Con.							
Mushrooms		88.1	3.5	.4	6.8	1.2	185
Onions	10.0	78.9	1.4	.3	8.9	.5	190
Parsnips	20.0	66.4	1.3	.4	10.8	1.1	230
Peas (<i>Pisum sati- vum</i>), dried		9.5	24.6	1.0	62.0	2.9	1,565
Peas (<i>Pisum sati- vum</i>) shelled		74.6	7.0	.5	16.9	1.0	440
Cowpeas, dried		13.0	21.4	1.4	60.8	3.4	1,505
Potatoes	20.0	62.6	1.8	.1	14.7	.8	295
Rhubarb	40.0	56.6	.4	.4	2.2	.4	60
Sweet potatoes	20.0	55.2	1.4	.6	21.9	.9	440
Spinach		92.3	2.1	.3	3.2	2.1	95
Squash	50.0	44.2	.7	.2	4.5	.4	100
Tomatoes		94.3	.9	.4	3.9	.5	100
Turnips	30.0	62.7	.9	.1	5.7	.6	120
Vegetables, canned:							
Baked beans		68.9	6.9	2.5	19.6	2.1	555
Peas (<i>Pisum sati- vum</i>), green		85.3	3.6	.2	9.8	1.1	235
Corn, green		76.1	2.8	1.2	19.0	.9	430
Succotash		75.9	3.6	1.0	18.6	.9	425
Tomatoes		94.0	1.2	.2	4.0	.6	95
*Fruits, berries, etc., fresh:							
Apples	25.0	63.3	0.3	0.3	10.8	0.3	190
Bananas	35.0	48.9	.8	.4	14.3	.6	290
Grapes	25.0	58.0	1.0	1.2	14.4	.4	295
Lemons	30.0	62.5	.7	.5	5.9	.4	125
Muskmelons	50.0	44.8	.3	.....	4.6	.3	80
Oranges	27.0	63.4	.6	.1	8.5	.4	150
Pears	10.0	76.0	.5	.4	12.7	.4	230
Persimmons, edible portion		66.1	.8	.7	31.5	.9	550
Raspberries		85.8	1.0	.....	12.6	.6	220
Strawberries	5.0	85.9	.9	.6	7.0	.6	150
Watermelons	59.4	37.5	.2	.1	2.7	.1	50
Fruits, dried:							
Apples		28.1	1.6	2.2	66.1	2.0	1,185
Apricots		29.4	4.7	1.0	62.5	2.4	1,125
Dates	10.0	13.8	1.9	2.5	70.6	1.2	1,275
Figs		18.8	4.3	.3	74.2	2.4	1,280
Raisins	10.0	13.1	2.3	3.0	68.5	3.1	1,265
Nuts:							
Almonds	45.0	2.7	11.5	30.2	9.5	1.1	1,515

* Fruits contain a certain proportion of inedible materials, as skin, seeds, etc., which are properly classed as refuse. In some fruits, as oranges and prunes, the amount rejected in eating is practically the same as refuse. In others, as apples and pears, more or less of the edible material is ordinarily rejected with the skin and seeds and other inedible portions. The edible material which is thus thrown away, and should properly be classed with the waste, is here classed with the refuse. The figures for refuse here given represent, as nearly as can be ascertained, the quantities ordinarily rejected.

Average composition of common American food products—Con.

Food materials (as purchased).	Refuse.	Water.	Pro- tein.	Fat.	Carbo- hy- drates.	Ash.	Fuel value per pound.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Calo- ries.
Vegetable Food—Con.							
Nuts—Con.							
Brazil nuts	49.6	2.6	8.6	33.7	3.5	2.0	1,485
Butternuts	86.4	.6	3.8	8.3	.5	.4	385
Chestnuts, fresh ..	16.0	37.8	5.2	4.5	35.4	1.1	915
Chestnuts, dried...	24.0	4.5	8.1	5.3	56.4	1.7	1,385
Cocoanuts	†48.8	7.2	2.9	25.9	14.3	.9	1,295
Cocoanut, prepared		3.5	6.3	57.4	31.5	1.3	2,865
Filberts	52.1	1.8	7.5	31.3	6.2	1.1	1,430
Hickory nuts	62.2	1.4	5.8	25.5	4.3	.8	1,145
Pecans, polished...	53.2	1.4	5.2	33.3	6.2	.7	1,465
Peanuts	24.5	6.9	19.5	29.1	18.5	1.5	1,775
Pinon (Pinus edulis)	40.6	2.0	8.7	36.8	10.2	1.7	1,730
Walnuts, black ..	74.1	.6	7.2	14.6	3.0	.5	730
Walnuts, English.	58.1	1.0	6.9	26.6	6.8	.6	1,250
Miscellaneous:							
Chocolate		5.9	12.9	48.7	30.3	2.2	2,625
Cocoa, powdered...		4.6	21.6	28.9	37.7	7.2	2,160
‡Cereal coffee, infu- sion (1 part boiled in 20 parts water)		98.2	.2	.....	1.4	.2	30

† Milk and shell.

‡ The average of five analyses of cereal coffee grain is: Water 6.2, protein 13.3, fat 8.4, carbohydrates 72.6, and ash 4.5 per cent. Only a portion of the nutrients, however, enter into the infusion. The average in the table represents the available nutrients in the beverage. Infusions of genuine coffee and of tea like the above contain practically no nutrients.

It only requires a little practice to learn how to use this table. For example, it is interesting to know what an ordinary day's diet will contain. In Bulletin No. 28 the differences between food as bought and as served on the table are given, for it is apparent that cooking will change the proportions of various substances in some foods. As an example, oatmeal when bought is dry, and when finally cooked it will take up so much water that one ounce of the dry rolled oats will make about ten ounces of "oatmeal" ready to eat. On the other hand, in broiling meat the heat causes the water in the meat to evaporate, so that

there will be less weight when it is ready to eat than when it was bought. In the "average" Food values given in the table the figures refer to the material as bought, so that in trying to use it we must consider the food in the condition in which it is bought. Therefore, in learning to use the table for figuring an ordinary day's diet, the first thing to do is to put down on paper just what is being eaten, then to weigh out the amount of food used. In weighing food it is much easier to work in terms of grams than in ounces, especially when percentages are to be reckoned. All that is necessary to know is that one ounce equals approximately 30 grams, and one pound equals 480 grams. If the scales weigh in ounces only, it is easy to change the ounce values to grams.

Having weighed out the total amounts of the various foods eaten in a day, we can turn to the table to see what they contain in protein, fat, carbohydrate, and how many calories are furnished. In an ordinary diet we need not consider refuse, water or ash (mineral salts). The water and salts usually take care of themselves, because a person adds water and table salt to his diet usually to suit his needs or tastes. The refuse is of more economic than dietary importance, since, naturally, the more refuse one gets in his purchase of food, the less he gets to eat for his money. Using the diet below as a basis, we see that oatmeal contains 16.7 per cent. protein, 7.3 per cent. fat and 66.2 per cent. carbohydrate (in its dried state), and as the serving of oatmeal was made from one-half ounce

oats (15 grams), this amount would contain 16.7 per cent. of 15 grams=2.5 grams protein; 7.3 per cent. of 15=1 gram fat, and 66.2 per cent. of 15=9.9 grams carbohydrate.

DIETARY FOR NORMAL WOMAN DOING MODERATE WORK.

(Atwater Standards.)

BREAKFAST.

Food	Quantity.	Gms. Protein.	Gms. Fat.	Gms. Carbohy- drate.	Calo- ries.
Orange	1	1.2	.3	17.4	77
Breakfast Rolls.	2	8	2.4	48	250
Rolled Oats					
(cooked)	100 gms. (3 oz.)	3.5	1	14	80
Cream	60 gms. (2 oz.)	1.6	11.2	2.8	116
Sugar	15 gms. (½ oz.)	...	...	15	60
Butter	10 gms. (⅓ oz.)	...	8	...	72
Egg	1	5.4	4.2	...	60
Bacon	20 gms. (⅔ oz.)	1.6	10.4	...	100
Coffee (no food value)					
Total		21.3	37.5	97.2	715

DINNER.

Stock Soup.....	120 gms. (4 oz.)	2.5	1	..	19
Chicken	100 gms. (3 oz.)	11	9	..	143
Mashed Potatoes	100 gms. (3 oz.)	2.3	1.5	19	100
French Peas....	100 gms. (3 oz.)	3.6	3	18	113
Tomato Salad...	50 gms. (1½ oz.)	.2	...	1	6
Bread	50 gms. (1½ oz.)	4.5	.5	30	142
Butter	10 gms. (⅓ oz.)	...	8	..	72
Pudding	100 gms. (3 oz.)	5.5	5	35	207
Total		29.6	28.0	103	802

SUPPER.

Cold Beef.....	50 gms. (1½ oz.)	14	6	...	110
Baked Potato...	150 gms. (5 oz.)	3.5	...	27.6	124

Food	Quantity.	Gms. Protein.	Gms. Fat.	Gms. Carbohy- drate.	Calo- ries.
Lettuce Salad...	50 gms. ($1\frac{2}{3}$ oz.)	.4	...	1.1	6
Bread	50 gms. ($1\frac{2}{3}$ oz.)	4.5	.5	30	142
Butter	10 gms. ($\frac{1}{3}$ oz.)	....	8	....	72
Baked Apple....	150 gms. (5 oz.)	.4	...	22	90
Cream	15 gms. ($\frac{1}{2}$ oz.)	.4	3	.7	30
Sugar	30 gms. (1 oz.)	....	...	30	120
Plain Cake.....	90 gms. (3 oz.)	4	2.5	35	178
Total		27.2	20.0	146.4	872

Daily Total 77 gms. protein; 85.57 gms. fat; 347 gms. carbohydrate; 2465 calories. Approximate values.

The caloric value of the food can be estimated in either one of two ways: (1) From the last columns in the table, where the fuel value of each food is given; or (2) by adding the total protein, fat and carbohydrate in the diet and multiplying each by the specific figures already explained. In using food tables for any work it is necessary to know that they give only approximate values, as foods may naturally vary considerably in the proportions they contain. A side of bacon left hanging in a butcher's shop on a warm day will lose water by evaporation, and will therefore contain a larger per cent. of solid matter than it did when it left the packers. Strawberries will take up water after a heavy rain; the amount of fat in a piece of beef will depend on the condition of the steer, and milk, of course, will vary a great deal, depending on the cow's food.

Already some question as to what the term "normal diet" means has doubtless arisen in the reader's mind.

Scientists have prepared tables of standard weights which they have obtained by actual examination of many individuals. In the preparation of these tables, the height, weight, age and sex of the individual have been considered, and by means of many comparisons they have obtained results similar to the following:

In the following table are given the estimated heights, weights and food requirement of an average man at different ages, the figures for height and weight being based upon the data given by Hill for males of the Teutonic races. (Recent advances in Physiology and Biochemistry):

Age, Years.	Height.	Weight		Food Requirement without Muscular Labor.	
		Kilos.	Pounds.	Total per day, Calories.	Per Kilo- gram per day Calories.
1	2:3	10	22	1000	100
5	3:3	17	37	1400	82
10	4:2	26	57	1800	70
15 .....	...	50	110	2800	56
20	5:7	65	143	3000	46
30	5:8	69	152	2750	40
40	5:7	70	154	2500	36
60 .....	...	65	143	2200	34
80 .....	...	60	132	1600	27

Sherman: Chemistry of Food and Nutrition.

Even with these tables we must know that every individual of given weight, height and age cannot be given the same amount or the same kind of food. There are other important factors which influence body

needs. By far the most important of these is the activity of the individual, denoted by work and rest. The kind of work and the conditions under which the person works are of vast importance. A person may do light work, moderate work or work which demands severe muscular exertion. The amount of tissue destroyed in each case will vary greatly, so that one can readily see that the amount of food needed to replace the body waste must vary greatly.

Standard dietaries to meet these conditions have also been prepared by different scientists. One method by which results have been obtained has been the selection of different individuals, living under different conditions. All the food which these people have eaten has been analyzed and all the excreta from the body. In this way comparisons have been made between the weights of the individual at different times in order to determine whether the food taken into the body was equal to the daily waste of the body substance.

Some of the standard daily dietaries suitable for a man of average weight and build doing moderate amount of muscular work are as follows:

Authority.	Protein.	Fat.	Carbo- hydrate.	Calories.
Voit	118 gms.	56 gms.	500	3055
Rubner	127 gms.	52 gms.	509	3092
Atwater	125 gms.	125 gms.	450	3520
For hard labor:				
Voit	145 gms.	100 gms.	450	3370
Rubner	165 gms.	70 gms.	565	3644
Atwater	150 gms.	150 gms.	500	4060

A woman requires .8 the food required by a man at moderate work.

A boy 15-16 requires .9 of the amount of food of a man at moderate work.

A girl 15-16 requires .8 of the amount of food of a man at moderate work.

A boy of 12 requires .7 of the amount of food of a man at moderate work.

A girl 10-12 requires .6 of the amount of food of a man at moderate work.

A child 6-9 requires .5 of the amount of food of a man at moderate work.

A child 2-5 requires .4 of the amount of food of a man at moderate work.

Mental work is also an important factor influencing the amount and the nature of the food required by an individual. As the person doing mental work does little or no muscular labor, body waste is not so great; therefore less food is needed to make good natural losses. For example, a clerk doing desk work may be well nourished on a diet yielding 2500 calories, while a blacksmith at hard labor would require 4500-5000 calories to keep himself in good condition.

Other factors which influence the food requirement are age and sex, climate and season, weight and build and personal idiosyncrasies or peculiarities. In all animal life the young demands food for growth as well as for repair, so we know that, relative to its weight, a child requires more food than an adult. Women require less food than men, because as a rule they are smaller and their bodies contain more fat and less muscle than those of men relative to their weight, so we say that women need about .8 as much food as men under similar conditions.

In cold climates more fuel food is needed to keep body temperature normal. As the external temperature decreases more food must be consumed, and it is better to increase the protein as it gives a greater amount of heat than other food nutrients. Seasons affect the food requirements more as to the kind than as to quantity of food which one needs. A diet rich in vegetable matters and relatively poor in proteins is better in summer.

The build and shape of the body is of more importance when computing its food requirements than the weight. The greater the surface of the body, the more heat is lost by radiation and more food is required to maintain body temperature. Thus a tall, thin man of a given weight may require more food than a short, fat man of the same weight living under the same conditions.

Personal peculiarity plays a very important role in the diet requirement of different individuals living under identically the same external conditions. The nervous system of each regulates the utilization of food materials, and body waste varies accordingly. *This teaches us that we cannot make or take any standard dietary and attempt to apply it to all individuals living under similar conditions.* Every man is a separate entity, in health and in disease, and this fact must always be borne in mind. However, this does not mean that we cannot make and use, with discretion, standard dietaries for people living under varying conditions. From these tables we can obtain valuable in-

formation which will enable us properly to balance our diet. Quite as much harm can be done and is done by an improperly balanced diet as by a diet which is insufficient in food value. A diet too rich in fats may be conducive to certain diseased conditions of the body. A diet too low in food value may undermine the general health and thus be a predisposing factor for the development of certain diseases. Ignorance more than poverty is to blame for both of these conditions. A campaign to scatter easily available knowledge is needed to correct the evil. The poorer classes need to be taught food values and to be shown that just as good and nourishing a diet may be obtained from food relatively low in cost as from food representing a considerable outlay of money. The proper preparation and cooking of good nutritious foods cannot be overestimated, as many people in their ignorance throw out of the back door more than the wage earner can bring in at the front door.

Here it is interesting to show some diets actually consumed by individuals of different countries and of different social ranks. These are selected from some of Atwater's tables, and most of them approach standards very closely:

Classes.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Sewing girl, London.....	53	33	316	1820
Factory girl, Leipsic, Germany.....	52	53	406	1940
Students, Japan	97	16	438	2343
Professor, Germany	100	100	240	2324
Swedish workman (moderate work) ..	134	79	523	3436
U. S. Army ration.....	120	161	454	3851
German soldier	114	39	480	2798

Classes.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Well to do family, Conn.....	128	177	466	4082
University Boat Crew.....	155	177	440	4085
Miner, Germany (severe labor).....	133	113	634	4195

In planning the menu for a meal we do not limit our selection to one, two or three foods. We like variety for several reasons, to balance the diet, to tempt the appetite, and to aid digestion. For instance, we precede a heavy meal with a light soup, not for the dietetic value of the soup, for that is low; but to stimulate the appetite and flow of digestive juices. A pickle, relish or salad may be used as an appetizer, not because it is high in nutritive value, although the value of each depends upon its nature. Monotony of diet will deprive many people of appetite and will thus leave them in a poorly nourished condition in which they will be more susceptible to disease. Therefore it is a good thing to add to the daily dietary many harmless foods relatively low in food value because of the psychic as well as dietetic value which they possess.

MENUS FOR NORMAL INDIVIDUAL FOR ONE WEEK.*

I.

Breakfast: Grapefruit, cream of wheat or puffed rice, bacon, eggs, rolls or toast and butter, coffee with cream.

Dinner: Consomme, ripe and green olives, celery, mashed potatoes, broiled squab with crab apple jelly, cauliflower with Hollandaise sauce, lettuce salad, ice-

* The normal diets here given are based on the menus served to guests and cured patients in the Michael Reese Hospital before war demands necessitated economy. Some of the items are obviously not essential, but are placed on the menus to appeal to the appetite.

cream with wafers, after dinner mints, coffee with cream, bread and butter.

Supper: Cold ham and tongue, baked sweet potatoes, asparagus on toast, raspberries and cake, bread and butter, coffee with cream.

II.

Breakfast: Oranges, rolled oats or grapenuts, bacon and eggs, toast or rolls and butter, coffee with cream.

Dinner: Vegetable soup, pickles, peach preserves, broiled steak, mashed potatoes, baked squash, fruit salad, whipped cream with Melba sauce, bread and butter, coffee with cream.

Supper: English mutton chops, potato au gratin, creamed celery, pea salad, sliced pineapple, bread and butter, tea with cream.

III.

Breakfast: Apple sauce, Pettijohn's or Post Toasties, smelts or eggs, toast or rolls and butter, coffee with cream.

Dinner: Vermicelli soup, olives, roast lamb, mashed potatoes, asparagus tips, Romaine salad, marshmallow pudding, bread and butter, coffee with cream.

Supper: Breaded veal cutlets, potato apples, macaroni and cheese, Brazilian salad, blackberries, bread and butter, tea, cream.

IV.

Breakfast: Grapefruit, farina or puffed wheat, broiled ham and eggs, toast or rolls and butter, coffee with cream.

Dinner: Cream of asparagus soup, mixed pickles, roast chicken with cranberry jelly, mashed potatoes, French peas, tomato salad, pineapple ice, bread and butter, coffee with cream.

Supper: Mock duck, baked potatoes, cottage cheese salad, baked pears and cake, bread and butter, cocoa.

V.

Breakfast: Prunes, wheaten or puffed wheat, bacon and eggs, toast or rolls with butter, coffee with cream.

Dinner: Creole soup, pickles, roast beef, mashed potatoes, spinach, lettuce salad, Charlotte Russe with chocolate sauce, bread and butter, coffee with cream.

Supper: Broiled steak, cream scones, orange marmalade, Maitre d'Hotel potato, beet and celery salad, peaches, butter, tea with cream.

VI.

Breakfast: Grapefruit, hominy grits or corn flakes, eggs or butterfish, toast or rolls with butter, coffee with cream.

Dinner: Scotch broth, olives, currant jelly, baked salmon, mashed potatoes, buttered beets, tomato salad, wine gelatin with whipped cream, bread and butter, coffee with cream.

Supper: Oyster stew, potato marbles, peach and nut salad, prune whip, bread and butter, cocoa.

VII.

Breakfast: Apricots, Ralston's or shredded wheat, chicken livers with bacon or eggs, toast or rolls with butter, coffee with cream.

Dinner: Cream of pea soup, pickles, baked beef tenderloin, mashed potatoes, Brussels sprouts, watercress salad, caramel mousse, bread and butter, coffee with cream.

Supper: Lamb chops, French fried potatoes, vegetable salad, red cherries, bread and butter, coffee with cream.

Proper dieting for the sick depends a great deal on the ability of either the patient or some member of his family to use diet tables; but when the principle of their use is once grasped, their application to the sick person is mainly a matter of common sense and arithmetic. Vague though our conceptions of the exact nature of the fundamental food groups may be, if we know what is wanted and why, it should be a simple matter to consult the table and plan a diet accordingly. If the physician wishes a typhoid fever patient to have a diet of high caloric value containing, say, 250 grams carbohydrate, 100 grams protein, and 200 grams fat, and also wants easily digested foods, he can work out from the tables a diet such as

HIGH CALORIC TYPHOID DIET.

Food.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
3 Eggs	18	15	..	210
30 gms. Butter.....	1	26	..	240
10 oz. Gruel.....	7	3	27	160
Sugar (Lactose) 80 gms.....	..	..	80	320
Cream 12 oz.....	12	72	12	744
Milk 42 oz.....	42	50	63	887
Cocoa (2 tb.) 1 oz.....	6	8	11	140
Toast 75 gms.....	7	1	45	220

Food.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Custard	6	5	18	140
Cream Soup 6 oz.....	7	11	12	180
	<hr/>	<hr/>	<hr/>	<hr/>
Totals	106	191	263	3241

The division of any diet into meals will be dependent to a great extent on the nature of the disease and the caprices of the patient's appetite; but it is usually better to plan a day in detail, so that a routine can be established which will not be interfered with; and one can be reasonably sure that the whole amount figured on will be taken.

The obtaining of variety in menus is perhaps more important in disease than in health, since more rigid limits as to foods are placed on the sick person. In the following chapters dealing with various diseases the question of variety in foods will be discussed, both from the standpoint of the scientific requirements of the disease and from the standpoint of preparation.

CHAPTER III.

DIABETES MELLITUS

Diabetes is a disease characterized by the appearance of sugar in the urine. Normally sugar is not found in urine by the common tests and its presence generally but not always means diabetes. The condition of sugar in the urine is called "glycosuria": this is not always diabetes. Nowadays the diagnosis of true diabetes can easily be made, and no one having sugar in his urine can afford to go without consulting a physician. The sugar appears in the urine of a diabetic because he is unable to use the carbohydrate of his diet, and part or all of it passes through the blood to the kidneys where it is excreted as sugar. As already stated in the second chapter, the carbohydrates of ordinary food are found in sugars, in the so-called starchy foods such as bread, potatoes, cereals, in fruits and some vegetables; and as the sugar in the urine comes from these substances the logical way of treating diabetes would seem to be merely the exclusion from the diet of all such carbohydrate foods. But unfortunately the disease is not so simple as this even in its mildest stage, and one cannot remove all carbohydrate from the diet of a normal person without danger. If we take starchy foods away from a normal person a substance appears in the urine known as acetone which indicates that the body is being poisoned. Now this poison comes from the fats in the food and will

usually be found if a healthy person eats no carbohydrate food for even as short a time as 24 to 48 hours; and it appears because there is no carbohydrate to be burned. The normal person who is not eating enough carbohydrate soon shows acetone, and the diabetic who is not using the carbohydrate he receives is in exactly the same position. Although the carbohydrate gets into the stomach, something is lacking in the body to make it of use, and it passes through the body. Any one who knows anything about an automobile engine will see a ready comparison in "carbureter troubles." A plentiful supply of gasoline is fed to the machine, but because the carbureter is not correctly performing its task of getting the "gas" ready for the motor the machine balks and finally stops. So with the diabetic. When the obscure cause of the disease starts the body on its path of not using carbohydrate, the disease if untreated generally progresses and less carbohydrate is being used all the time. So that no matter how much starchy food a diabetic may eat he uses only a small portion of what he eats, and he is therefore in approximately the same condition as the normal person who is getting no carbohydrate. If this keeps up long enough the diabetes becomes severe and acetone may appear in the urine in the course of the disease. If all starchy foods are taken away from the diabetic, as was formerly done, it is true that the sugar may disappear, but at the same time acetone may appear in the urine, and the patient may show signs and symptoms of poisoning which are more dangerous than the presence of sugar.

That is the reason why the treatment of diabetes is not the simple matter of withdrawing carbohydrates.

It has been said so far that diabetes is a disease characterized by sugar in the urine, but that other dangerous substances (acetone bodies) may also be found. The sugar comes from the carbohydrates of the food, and the acetone from the fats of the food; so that it can be seen that in diabetes two of the most important food elements are or may be involved. But that is not all. The third important food division is protein, and in quite a few cases of diabetes the sugar in the urine is made from the protein in the food or in the body tissues as well as from carbohydrate. It requires considerable skill and much careful analysis of both food and urine to determine in an individual case just how the food is behaving and just what abnormal constituents of the urine come from what source of food, but nowadays that is done as part of the treatment of every case, and it must be done if the patient is going to be able to assist the physician in taking care of himself. Usually better results are obtained if the patient is in an institution where the urine can be examined every day, and where the patient can be carefully controlled in every particular, which means diet, rest and exercise, drink, etc.; and whenever this is possible it will be found that a stay of from one to three weeks will be a tremendous saving all around. Also we want to enable the patient who may have opportunity to take hospital treatment for a time, upon leaving the institution, to assist his physician in taking

care of him. But with some patients this is not possible, in which case the physician has to do the best he can, and with intelligent co-operation by the patient he can often achieve wonderfully good results.

In treating diabetes it must be understood at the outset that the aim of treatment is to get the urine free from sugar and free from acetone. The means of doing this vary with the individual case and with the severity of the disease. In the course of history many so-called diabetic "cures" have been described, but it can safely be said that a specific diabetic cure has never been found. It is true that patients can be made free from sugar and acetone and then can eat a considerable amount of all kinds of food, but even these patients if they are real diabetics can not transgress certain limits which have been found for them. That is one of the strongest arguments for the modern practice of telling a patient as much about his disease as he can understand, and that is why we are going into such details in this chapter.

As we have already stated, the aim of treatment is to get the urine free from sugar and acetone. If acetone is not present we must aim to prevent its appearance during treatment. In the mildest cases of diabetes the sugar will disappear from the urine if we simply remove some of the carbohydrates from the diet, whereas in other cases it may be necessary to starve a patient completely. The best way to find out just what kind of a "case" we are dealing with is to put the patient on a special diet in which every article

of food is known, and either weighed accurately or estimated approximately. Such a diet may be seen below:

DIABETIC TEST DIET.

BREAKFAST.

Grapefruit	½	Butter	10 gms.
Eggs	2	Cream	15 c.c.
Bacon	20 gms.	Coffee	1 cup
Bread	25 gms		

DINNER.

Cream Soup	3 oz.	Bread	25 gms.
Roast Beef	75 gms.	Butter	20 gms.
Spinach	100 gms.	Wine Gelatin	4 oz.
Kohl-rabi	100 gms.	Coffee	
Lettuce Salad	50 gms.	Cream	15 c.c.
Ripe Olives	15 gms.		

SUPPER.

Lamb Chop	1	Coffee	
Asparagus Tips	50 gms.	Cream	15 c.c.
Egg Plant	50 gms.	Butter	20 gms.
Tomato Salad	50 gms.	Bread	25 gms.
Custard (Diabetic)			

This diet contains approximately 70 gms. protein, 100 gms. fat and 70 gms. carbohydrate, and the patient is kept on it for at least two days. Then the carbohydrate is cut down by taking away 25 gms. of bread every day. If the case is a mild one, the sugar will disappear and no acetone will appear, and then the first step of treatment will have been accomplished. The next step is to keep the urine clear for some days,

and then carbohydrate is added gradually in order to see how much the patient will use without sugar re-appearing. This is best done by again adding one ounce of bread a day until the patient is taking 4 or 5 ounces. It is wise not to attempt to use more than one kind of starchy food at a time at this stage of treatment, but if the patient prefers potato or some cereal like oatmeal we can use either potato or oatmeal instead of bread. When we do we must remember that 3 ounces of potato, or 9 ounces of cooked oatmeal contain the same amount of carbohydrate as 1 ounce of bread, so that we can safely use 3 times as much potato or 9 times as much cooked oatmeal. If on the other hand the patient would like to eat more than one kind of carbohydrate food, we must find out whether he can do this without the appearance of sugar, as some patients can not "mix" their carbohydrate food. The best way of doing this is to substitute for the bread already in the diet equivalent amounts of potato or oatmeal. For instance, on the first day we can give 9 ounces of cooked oatmeal in place of one ounce of the bread, and the next day we can give 3 ounces of potato instead of one ounce of bread. This method of testing equivalent foods is illustrated in some sample diets:

1st Day.

BREAKFAST.

Grapefruit	½	Cream	10 c.c.
Bacon	20 gms.	Egg	1
Coffee		Butter	5 gms.

DINNER.

Broth	150 c.c.	Ripe Olives	10 gms.
Lettuce with Lemon..	25 gms.	Butter	5 gms.
Coffee		Fresh Spinach	100 gms.
Cream	20 c.c.	English Walnuts	20 gms.
Roast Beef	50 gms.	Bread	20 gms.

SUPPER.

Eggs	2	Butter	5 gms.
French Endive	25 gms.	Kohl-rabi	100 gms.
Cream	20 c.c.	Coffee	
Cold Chicken	25 gms.	Bread	20 gms.
Neuf. Cheese	50 gms.		
Total carbohydrate 40 gms.			

2nd Day.

BREAKFAST.

Grapefruit	½	Coffee	
Egg	1	Cream	10 c.c.
Butter	5 gms.		

DINNER.

Broth	150 c.c.	Egg	1
Tomatoes	100 gms.	Cabbage Salad	50 gms.
Special Oatmeal	180 gms.	Cream	20 c.c.
Butter	5 gms.	Tea or Coffee	

SUPPER.

Egg	1	Special Oatmeal	180 gms.
Rhubarb	75 gms.	Egg Plant	50 gms.
Butter	5 gms.	Cream	20 c.c.
Tea or Coffee			
Carbohydrate 40 gms.			

3rd Day.

BREAKFAST.

Grapefruit	½	Butter	5 gms.
Egg	1	Coffee	
Bacon	20 gms.	Cream	10 c.c.

DINNER.

Cream of Celery Soup. 3 oz.	Whipped Cream Des-
Broiled Steak 75 gms.	sert 4 oz.
Ripe Olives 10 gms.	Coffee
Baked Potato 60 gms.	Cream 15 c.c.
Fresh Asparagus 50 gms.	Butter 5 gms.
Tomato Salad 50 gms.	

SUPPER.

Lamb Chop 1	Butter 5 gms.
Broiled Onions 50 gms.	Coffee
Lettuce Salad with	Cream 15 c.c.
Lemon 50 gms.	Potato 60 gms.
Custard 4 oz.	

Approx. 40 gms. carbohydrate.

Of course the changes which can be run into such a diet are many. One must know just how much carbohydrate the patient is receiving, and if it is desired to substitute some other foods all that is necessary is to consult the food tables. For this purpose the arrangement of foods into groups on the basis of the amount of carbohydrate they contain is very convenient and the table which Dr. Joslin has used is most convenient.

**STRICT DIET. Meats, Fish, Broths, Gelatine
Eggs, Butter, Olive Oil, Coffee, Tea and Cracked Cocoa.**

FOODS ARRANGED APPROXIMATELY ACCORDING TO % OF CARBOHYDRATES.		5%	10%	15%	20%
VEGETABLES (fresh or canned)		Lettuce	Pumpkin	Green Peas	Potatoes
		Cucumbers	Turnip	Artichokes	Shell Beans
		Spinach	Kohl-Rabi	Parsnips	Baked Beans
		Asparagus	Squash	Canned	Green Corn
		Rhubarb	Beets	Lima Beans	Boiled Rice
		Endive	Carrots		Boiled
		Marrow	Onions		Macaroni
		Sorrel	Mushrooms		Prunes
		Sauerkraut			
		Best Greens			
FRUITS		Dandelion			
		Swing Beans			
		Greens			
		Broccoli			
		Swiss Chard			
		Celery			
		Tomatoes			
		Ripe Olives (20% fat)	Lemons	Apples	Plums
		Grape Fruit	Oranges	Pears	Bananas
			Cranberries	Apricots	
NUTS			Strawberry's	Blueberries	
			Blackberry's	Cherries	
			Gooseberry's	Currants	
			Peaches	Raspberries	
			Pineapple	Huckleberry's	
			Watermelon		
		Butternuts	Brazil Nuts	Almonds	Peanuts
		Pignolias	Bk Walnuts	Wal'ts (Eng.)	
			Hickory	Beechnuts	40%
			Pecans	Pistachios	
Misc.			Filberts	Pine Nuts	Chestnuts
Unsweetened & Unspiced		* Reckon available carbohydrates in			
Pickles Clams Oysters		vegetables of 5% group as 3%, of 10%			
Scallops Liver Fish Roe		group as 6%.			
(30 grams 1 oz.)		PROTEIN	FAT	CARBOHYDRATES	CALORIES
CONTAIN APPROXIMATELY		G.	G.	G.	
Oatmeal, dry wgt.		5	2	20	110
Meat (uncooked, lean)		6	3	0	50
" (cooked, lean)		8	5	0	75
Broth		0.7	0	0	3
Potato		1	0	6	25
Bacon		5	15	0	155
Cream, 40%		1	12	1	120
" 20%		1	6	1	60
Milk		1	1	1.5	20
Bread		3	0	18	90
Butter		0	25	0	240
Egg (one)		6	6	0	75
Brazil Nuts		5	20	2	210
Orange or Grape Fruit (one)		0	0	10	40
Vegetables 5 & 10% group		0.5	0	1 or 2	6 or 10
Oysters, six		6	1	4	50

In this little table the more common foods are all put down under the percentage of carbohydrate they contain; and it requires very simple arithmetic to learn to use it. For example any one of the 5% group can be substituted for the *same amount* of any other food in the group; only $\frac{1}{2}$ the amount of any of the 10% group, and only $\frac{1}{3}$ the amount of any in the 15% group, however, can be substituted for articles in the 5% group. On the other hand if the patient wants to eat apples instead of bread all he has to know is that apples contain 15% carbohydrate, while bread contains 60%, so that it will take 4 times as much apple as bread to yield the equivalent amount of carbohydrate in the food. He can then substitute for one ounce of bread 4 ounces of apple, which is the average weight of one ordinary sized apple. Such substitutions can be carried out in an almost indefinite manner, so that after the exact amount of carbohydrate which a patient can use is once determined menus of surprising variety can be served.

Some examples of menus showing such possible substitutions and the methods of making them are now shown, and at the end of the chapter will be found numerous more menus. The carbohydrate content of the food for all three days is approximately 54 grams.

1st Day.

BREAKFAST.

Grapefruit	$\frac{1}{2}$	Cream	15 c.c.
Egg	1	Butter	10 gms.
Bacon	20 gms.	Bran Muffin	1
Coffee			

YRASELL HALL

DINNER.

Cream of Tomato Soup.....	100 c.c.	Bread	25 gms.
Roast Beef	50 gms.	Coffee or Tea	
Fresh Spinach	100 gms.	Cream	15 c.c.
Kohl-rabi	100 gms.	Butter	20 gms.
Cabbage Salad	50 gms.	Ripe Olives	4
Princess Pudding	120 gms.		

SUPPER.

Cold Meat	40 gms.	Fresh Rhubarb	100 gms.
Egg	1	Coffee or Tea	
Broiled Onions	50 gms.	Cream	15 c.c.
String Beans	50 gms.	Butter	20 gms.
Celery and Nut Salad.	50 gms.	Almond Muffin	1

2nd Day.

BREAKFAST.

Grapefruit	½	Cream	15 c.c.
Egg	1	Butter	10 gms.
Fish, small (1)	25 gms.	Bran Muffin	1
Coffee			

DINNER.

Cream of Chicken		Diabetic Ice-cream....	100 gms.
Soup	100 c.c.	Potato	75 gms.
Roast Lamb	50 gms.	Coffee or Tea	
Asparagus	100 gms.	Cream	15 c.c.
Tomatoes	100 gms.	Butter	20 gms.
Lettuce Salad	50 gms.	Radishes	4

SUPPER.

Sardines	40 gms.	Cream	15 c.c.
Egg	1	Butter	20 gms.
Creamed Celery	100 gms.	Bran Muffin	1
Egg Plant	50 gms.	Wine Gelatine with	
Vegetable Salad	50 gms.	Whipped Cream	
Coffee or Tea		Dessert	120 gms.

3rd Day.

BREAKFAST.

Grapefruit	½	Cream	15 c.c.
Egg	1	Butter	10 gms.
Broiled Ham	35 gms.	Bran Muffin	1
Coffee			

DINNER.

Tomato Bouillon	150 c.c.	Baked Apple	100 gms.
Broiled Steak	75 gms.	Coffee or Tea	
Cabbage	100 gms.	Cream	15 c.c.
String Beans	100 gms.	Butter	20 gms.
Watercress Salad.....	25 gms.	Dill Pickle	1

SUPPER.

Lamb Chop	1	Coffee Bavarian Cream.	120 gms.
Egg	1	Coffee or Tea	
Spinach	125 gms.	Cream	15 c.c.
Mushrooms	50 gms.	Butter	20 gms.
Tomato Salad	50 gms.	Bran Muffin	1

Unfortunately most cases of diabetes, unless they come for treatment very early in the disease, do not clear up as easily as the mild ones just described, and in such cases the procedure employed to make the urine free from sugar is different. Most of such patients already show acetone and diacetic acid in the urine, in which case a real danger may exist from further reducing the carbohydrate of the food. All sorts of methods for treating such patients have been described, but need not be discussed in this book because it has been shown that the very best thing to do for such patients is to take *all* food away. It may sound strange to say that withdrawing the carbohydrates and leaving the other foods may be dangerous, whereas withdrawal of all food will give good results, but the experience of many years shows this to be true.

But this starvation treatment can not be considered a simple procedure, and it must be carried out with the greatest care and always under the control of a physician. The patient is confined to bed during the star-

vation days, and the physician makes daily examinations of the urine. In our opinion it is inadvisable *suddenly* to put a patient on starvation, and the physician must determine in the individual case just when to take away all food. If the patient is put on the test diet already described on page 45 it may be found that he is not only showing sugar but a large amount of acetone bodies in the urine. In such a case it is probably best to remove most of the fats before anything else is done. Then follow one or two days in which nothing but 3 or 4 eggs, 250 to 300 gms. (8-10 oz.) of 5% vegetables are given, and as a rule starvation can follow safely. During the starvation nothing is given by mouth except water as much as wanted, coffee or tea without sugar or cream (6 ounces 3 times during the day), and in some cases 8-10 ounces of clear chicken or meat broth and whiskey $\frac{1}{2}$ ounce every 3 hours. Starvation is kept up until the urine is free from sugar; some physicians have starved patients as long as 10 days. With the method we have just outlined 1-3 days' starvation is usually successful.

Before discussing the treatment which follows we want to show actual diets used in reaching the starvation level. The two days test already described on page 45 were followed by the following diets:

3rd Day.

BREAKFAST.

Grapefruit	$\frac{1}{2}$	Coffee	1 cup
Egg	1		

DINNER.

Broth	120 c.c.	Romaine Salad	50 gms.
Egg	1	Coffee or Tea	

SUPPER.

Eggs	2	Tomato Salad	50 gms.
Spinach	100 gms.	Coffee or Tea	

4th Day.

BREAKFAST.

Grapefruit	½	Coffee	1 cup
Egg	1		

DINNER.

Egg	1	Watercress Salad	50 gms.
Cauliflower	100 gms.	Coffee	

SUPPER.

Eggs	2	Lettuce	50 gms.
String Beans	50 gms.	Tea	

5th Day.

Starvation until sugar-free urine is obtained.

If by this method we have succeeded in making the urine free from sugar and acetone, we have accomplished the same thing as we did with the milder cases by a simple withdrawal of carbohydrate. The patient is in relatively the same condition as the mild case, and is now ready to have food. When we give to this class of patients we must remember what was said earlier in this chapter about the possible dangers from protein and fat as well as from carbohydrate, so that we must add food very slowly and know exactly what we are giving. The principle to have in mind now is the gradual addition every day of compara-

tively small amounts of food whose value in protein, fat and carbohydrate is known. The 5% vegetables, forming as they do a large bulk with small nourishment, are the first carbohydrate to be added, while the protein and fat are found in eggs. The following schedules of Joslin, with their explanatory notes, will give a good idea of how this part of the treatment is carried out.

Fasting. Fast until sugar-free. Drink water freely and tea, coffee and clear meat broth as desired. In very severe, long standing and complicated cases, without otherwise changing habits or diet, omit fat, after two days omit protein and halve carbohydrate daily to 10. grams, then fast.

Carbohydrate Tolerance. When the 24 hour urine is sugar-free, add 150 grams of 5 per cent. vegetables, and continue to add 5 grams carbohydrates daily up to 20, and then 5 grams every other day, passing successively upward through the 5, 10, and 15 per cent. vegetables, 5 and 10 per cent. fruits, potato and oatmeal to bread, unless sugar appears or the tolerance reaches 3 grams carbohydrate per kilogram body weight.

Protein Tolerance. When the urine has been sugar-free for 2 days, add 20 grams protein (3 eggs) and thereafter 15 grams protein daily in the form of meat until the patient is receiving 1 gram protein per kilogram body weight, or if the carbohydrate tolerance is zero, only $\frac{1}{4}$ gram per kilogram body weight.

Fat Tolerance. While testing the protein tolerance, a small quantity of fat is included in the eggs and meat given. Add no more fat until the protein reaches 1 gram per kilogram (unless the protein tolerance is below this figure) but then add 25 grams daily until the patient ceases to lose weight or receives not over 40 calories per kilogram body weight.

Reappearance of Sugar. The return of sugar demands fasting for 24 hours or until sugar-free. The diet is then increased twice as rapidly as before, but the carbohydrate should not exceed half the former tolerance until the urine has been sugar-free for 2 weeks, and it should not then be increased more than 5 grams per week.

Weekly Fast Days. Whenever the tolerance is less than 20 grams carbohydrate, fasting should be practised one day in seven; when the tolerance is between 20 and 50 grams carbohydrate, upon the weekly fast day 5 per cent vegetables and one-half the usual quantity of protein and fat are allowed; when the tolerance is between 50 and 100 grams carbohydrate, the 10 and 15 per cent vegetables are added as well. If the tolerance is more than 100 grams carbohydrate, upon weekly fast days the carbohydrate should be halved.

If these additions are made slowly enough, in many cases considerable carbohydrate as well as protein and fat may be added, but it is well to remember that modern science has shown that it is most unwise to attempt to "stuff" a patient as was formerly done with protein or fat or both. The patient does not have to gain back his weight: it has been found that if he can comfortably live and perform his normal activities on less food than he is accustomed to his diabetes will be improved.

If the patient has understood what has been done for him up to this point he will easily be able to go home and continue the "cure." The amount of each kind of food which is best for him having already been established, he can by a little study control his own diet. He should learn to test his own urine for sugar (the test is given at the end of this chapter) and should know what to do if sugar appears. We believe that the very best results in treatment can be attained if the patient lives on a scheduled diet. If Sunday is his accustomed heavy feeding day, he should begin his week on Monday with a partial fast day. This would include eggs, bacon, 5% and 10% vegetables; the next day he takes his usual diet with only one half his limit of carbohydrate food; for instance, if he has been eating 4 ounces of bread or its equivalent in oatmeal or potato, he should on Tuesday eat only 2 ounces. On Wednesday he takes $\frac{3}{4}$ and for the rest of the week he can have his full quota of carbohydrate.

1st Day.

BREAKFAST.

Grapefruit	½	Oatmeal	75 gms.
Eggs	2	Cream	30 c.c.
Bacon	20 gms.	Butter	5 gms.

DINNER.

Broth	120 c.c.	Radishes	25 gms.
Salted Almonds	20 gms.	Gooseberries	100 gms.
Broiled Steaks	75 gms.	Coffee	
French Peas	100 gms.	Cream	15 c.c.
Cabbage	50 gms.	Butter	15 gms.
Watercress Salad	25 gms.		

SUPPER.

Cottage Cheese	75 gms.	Cream	15 c.c.
Broiled Onions	100 gms.	Butter	10 gms.
Applesauce (no sugar)	50 gms.	Bread	20 gms.

2nd Day.

BREAKFAST.

Grapefruit	½	Coffee	
Eggs	2	Cream	30 c.c.
Bacon	20 gms.	Butter	5 gms.
Oatmeal	75 gms.		

DINNER.

Consomme	100 c.c.	Potato	30 gms.
Ripe Olives	10 gms.	Lettuce Salad	50 gms.
Chicken	20 gms.	Diabetic Ice-cream	100 gms.
Nuts	20 gms.	Coffee	
Lima Beans	100 gms.	Cream	15 c.c.
Carrots	100 gms.	Butter	10 gms.

SUPPER.

Cold Meat	25 gms.	Bread	20 gms.
Egg	1	Strawberries	100 gms.
Green Onions	50 gms.	Coffee	
Asparagus	50 gms.	Cream	15 c.c.
Cottage Cheese	75 gms.	Butter	15 gms.

3rd Day—(Fast Day).

BREAKFAST.

Grapefruit	½	Coffee
Eggs	2	

DINNER.

Broth	120 c.c.	Lettuce	50 gms.
Broiled Onions	100 gms.	Rhubarb	50 gms.
String Beans	50 gms.	Coffee	

SUPPER.

Egg	1	Gooseberries	50 gms.
Turnips	50 gms.	Coffee	
Egg Plant	50 gms.		

4th Day.

BREAKFAST.

Grapefruit	½	Coffee	
Eggs	2	Cream	15 c.c.
Bacon	20 gms.	Butter	5 gms.

DINNER.

Broth	120 c.c.	Tomato Salad	50 gms.
Ripe Olives	10 gms.	Fresh Strawberries ...	50 gms.
Roast Lamb	50 gms.	Coffee	
Kohl-rabi	50 gms.	Cream	15 c.c.
Nuts	20 gms.	Butter	10 gms.
Lima Beans	100 gms.		

SUPPER.

Cold Chicken	25 gms.	Sliced Oranges	50 gms.
Egg	1	Coffee	
Broiled Onions	100 gms.	Cream	15 c.c.
Carrots	50 gms.	Butter	10 gms.

5th Day.

BREAKFAST.

Grapefruit	½	Coffee	
Eggs	2	Cream	30 c.c.
Bacon	20 gms.	Butter	5 gms.
Oatmeal	75 gms.		

DINNER.

Broth	120 c.c.	Nuts	20 gms.
Roast Chicken	50 gms.	Ripe Olives	10 gms.
Turnips	150 gms.	Coffee	
Green Peas	100 gms.	Cream	15 c.c.
Fresh Rhubarb	100 gms.	Butter	15 gms.

SUPPER.

Cold Beef	25 gms.	Whipped Cream Dessert	75 gms.
Egg	1	Coffee	
Cottage Cheese	75 gms.	Cream	15 c.c.
Carrots	100 gms.	Butter	10 gms.

During all this time he ought to lead a regular life in which exercise plays an important role. Every diabetic patient, be it man, woman or child, will get along better after the treatment we have outlined if exercise, especially in the open air, becomes a regular part of the routine of living. If the diabetic is accustomed to alcoholic drinks a glass of Rhine or Moselle wine, or a high-ball with dinner may help his digestion, but beer, champagne and all sweet wines are strictly forbidden.

The condition of the diabetic may change from time to time, so that during the home treatment sugar may appear in the urine without a definite reason. Whenever sugar appears it is a signal to cut down the carbohydrates, and the best way to do this is by a fast day which usually will cause the sugar to disappear. Then if the gradual addition of carbohydrates be practised as we have just advised, it is easy to find out how much carbohydrate may be safely added to the diet before sugar appears. Then, of course, no more than this amount should be taken. On the other hand, many

patients find that after some time they can eat more carbohydrate than their allowance, which means that the treatment has improved the condition; and in such cases it is usually safe to allow the extra amount. But even with the improved patients we believe that the gradual schedule of food should be followed and that the chances for a continuation of improvement are greater if such a schedule is used.

SPECIAL DIABETIC MENUS.

VEGETABLE AND EGG DAY. (Partial Fasting)

BREAKFAST.

Food.	Amount.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Grapefruit	½	...	...	5	20
Egg	1	5.4	4.2	...	60
Celery Hearts	50 gms.	.5	...	1.5	8
Black Coffee .....	...	...	...	...	...
Totals		5.9	4.2	6.5	88

DINNER.

Clear Broth	100 c.c.	2	...	...	8
Brussels Sprouts	100 gms.	1.5	...	3	18
Spinach	100 gms.	2	...	1	12
French Endive	50 gms.	1	...	1.5	10
Ripe Olives	20 gms.	...	4	2	44
English Walnuts	15 gms.	2.6	9.8	2.5	109
Gooseberries	50 gms.	1	...	1.5	10
Black Coffee or Plain Tea .....	...	...	...	...	...
Totals		10.1	13.8	11.5	211

SUPPER.

Egg	1	5.4	4.2	...	60
Vegetable Marrow	100 gms.	1	...	2	12
Asparagus Tips	100 gms.	1.5	...	3	18

Food.	Amount.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Tomato Salad	50 gms.	.3	...	1	6
Rhubarb	100 gms.	.5	.5	3	18
Black Coffee or Plain Tea .....		...	...	...	...
Totals		8.7	4.7	9	114
Daily Totals		24.7	22.7	27	413

DIABETES MENUS WITH APPROXIMATE FOOD VALUES.

Diet for a Patient at Rest. (Slight Physical Exertion.)

BREAKFAST.

Food.	Amount.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Grapefruit	½	...	...	5	20
Eggs	2	10.8	8.4	...	120
Bacon (2 slices)....	20 gms.	3	10	...	102
Cream (½ oz.) or..	1 tablespoon	.5	3	.5	30
Butter	5 gms.	...	4	...	36
Coffee .....		...	...	...	...
Totals		14.3	25.4	5.5	308

DINNER.

Broth	120 c.c.	3	...	...	12
Chicken	50 gms.	11	1.5	...	58
Fresh Asparagus...	100 gms.	1.5	...	3	18
Sliced Cucumbers...	50 gms.	.5	...	1.5	8
Salted Almonds....	20 gms.	4.5	11	3.4	130
Ripe Olives (2)....	10 gms.	...	2	1	22
Wine Gelatin	120 gms.	...	...	...	80
Cream	1 tablespoon	.5	3	.5	30
Butter	10 gms.	...	8	...	72
Coffee or Tea.....		...	...	...	...
Totals		21.0	25.5	9.4	430

SUPPER.

Food.	Amount.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
1 Lamb Chop.....	50 gms.				
Edible portion		9.3	14.1	...	165
Spinach	100 gms.	2	...	3	20
Creamed Celery (1 oz. cream).....	100 gms.	2	6	3.5	76
Tomato Salad	50 gms.	.3	...	1	6
Custard	100 c.c.	6	17	2.5	187
Butter	10 gms.	...	8	...	72
Totals		19.6	45.1	10.0	526
Daily Totals		55	96	25	1264

BREAKFAST.

Grapefruit	½	...	...	5	20
Egg	1	5.4	4.2	...	60
Broiled Ham	35 gms.	8.3	4.7	...	76
Almond Muffin	1	5.5	10.5	2.4	126
Butter	10 gms.	...	8	...	72
Cream	1 oz.	1	6	1	62
Coffee .....		...	...	...	...
Totals		20.2	33.4	8.4	416

DINNER.

Stock Soup	120 c.c.	2	1	.5	20
Chicken	50 gms.	11	1.5	...	58
String Beans	100 gms.	2	...	5.0	28
Cabbage	100 gms.	1.5	...	3	22
Watercress Salad ..	50 gms.	1	...	1.5	10
Ice-cream	100 gms.	3	13	2.5	140
Almond Muffin	1	5.5	10.5	2.4	126
Radishes	25 gms.	.4	...	1.5	8
Dill Pickle	1 small	.1	...	.3	2
Cream	15 c.c.	.5	3	.5	30
Butter	30 gms.	.3	26	...	235
Coffee or Tea.....		...	...	...	...
Totals		27.3	55.0	17.2	679

DIABETES MELLITUS.

63

SUPPER.

Food.	Amount.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Cold Beef	50 gms.	9.5	6.5	...	96
Egg	1	5.4	4.2	...	60
Mushrooms	50 gms.	2	.2	3.4	23
Egg Plant	50 gms.	1	...	2.5	14
Lettuce Salad	50 gms.	.5	...	1.5	8
Coffee Bavarian cream	100 gms.	6	8	1	100
Bran Muffin	1	5	7	4.5	101
Butter	25 gms.	...	21	...	189
Cream	30 c.c.	1	6	1	62
Coffee or Tea.....	.....	...	...	...	...
Totals .....	.....	30.4	52.9	13.9	653
Daily Totals (approx.)..	.....	78	141	39	1737

BREAKFAST.

Fresh Rhubarb	100 gms.	.5	.5	3	18
Perch	1 average	6	.3	...	27
Eggs	2	10.8	8.4	...	120
Almond Muffin	1	5.5	10.5	2.4	126
Butter	20 gms.	...	17	...	155
Cream	30 c.c.	1	6	1	62
Coffee or Tea.....	.....	...	...	...	...
Totals .....	.....	23.8	42.7	6.4	508

DINNER.

Cream of Asparagus Soup	100 c.c.	1.5	18	2	176
Roast Beef	75 gms.	15	9	...	141
Broiled Onions	100 gms.	1.5	.3	7.5	40
Radishes	50 gms.	.5	...	2	10
Watercress Salad ..	25 gms.	...	...	1	4
Olive Oil	1 tablespoon ...	...	15	...	135
Whipped Cream Dessert	100 gms.	5	16	2.5	175
Bran Muffin	1	5	7	4.5	101
Ripe Olives (4)....	20 gms.	...	4	2	44
Cream	30 c.c.	1	6	1	62

Food.	Amount.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Butter	15 gms.	...	12	...	108
Coffee or Tea.....	.....	...	...	...	...
Totals		29.5	87.3	22.5	996

SUPPER.

Cold Chicken	50 gms.	11	1.5	...	58
Egg	1	5.4	4.2	...	60
Cottage Cheese	50 gms.	10	...	2	48
Egg Plant	50 gms.	1	.5	2.5	19
Tomatoes	50 gms.	.3	...	1	6
Gooseberries	100 gms.	1.5	...	8.5	40
Butter	15 gms.	...	12	...	108
Almond Muffin	1	5.5	10.5	2.4	126
Cream	30 c.c.	1	6	1	62
Coffee or Tea.....	.....	...	...	...	...
Totals		35.7	34.7	17.4	527
Daily Totals		89.0	164.7	46.3	2031

BREAKFAST.

Grapefruit	½	...	...	5	20
Egg	1	5.4	4.2	...	60
Bacon	20 gms.	3	10	...	104
Bran Muffin	1	5	7	4.5	101
Butter	20 gms.	...	17	...	155
Cream	30 c.c.	1	6	1	62
Coffee or Tea.....	.....	...	...	...	...
Totals		14.4	44.2	10.5	502

DINNER.

Cream of Tomato					
Soup	100 c.c.	1.5	18	2	176
Roast Lamb	75 gms.	15	8	...	132
Tomatoes	100 gms.	.6	...	2	10
Asparagus	100 gms.	1.5	...	3	18
Cabbage Salad	50 gms.	1	...	1.5	10
Dill Pickle	1	.1	...	.3	2
Bran Muffin	1	5.0	7	4.5	101

DIABETES MELLITUS.

65

Food.	Amount.	Protein.	Fat.	Carbo- hydrate.	Calo- ries.
Butter	25 gms.	.2	21	...	190
Cream	30 c.c.	1	6	1	62
Rhubarb	100 gms.	.5	.5	3	18
Coffee or Tea.....	.....	...	...	...	...
Totals .....	.....	26.4	60.5	17.3	719

SUPPER.

Cold Beef	50 gms.	9.5	6.5	...	96
Egg	1	5.4	4.2	...	60
Cottage Cheese	75 gms.	15	...	3	72
Kohl-rabi	100 gms.	1.5	...	3	18
String Beans.....	100 gms.	2	...	5	28
Lettuce Salad	50 gms.	.5	...	1.5	8
Olive Oil	1 tablespoon ...	...	15	...	135
Custard	120 gms.	6	17	2.5	180
Almond Muffin	1	5.5	10.5	2.4	126
Butter	30 gms.	.3	26	...	236
Cream	30 c.c.	1	6	1	62
Coffee or Tea.....	.....	...	...	...	...
Totals .....	.....	46.7	85.2	18.4	1021
Daily Totals .....	.....	87.5	189.9	46.2	2239

DIABETIC MENUS FOLLOWING FASTING UNTIL SUGAR
FREE.

1st Day.

8 A. M. BREAKFAST.

Grapefruit	½	Coffee or Tea
Egg	1	

12 M. DINNER.

Broth	120 c.c.	Egg	1
Tomatoes	100 gms.	Coffee or Tea	
Rhubarb	50 gms.		

5 P. M. SUPPER.

Egg	1	Vegetable Marrow ...	100 gms
String Beans	75 gms.	Grapefruit	½
Celery Hearts	25 gms.	Coffee or Tea	
Cream	30 c.c.		

Approx. Protein 22 gms. Fat 15 gms. Carbo. 22 gms. Cal. 311.

2nd Day.

8 A. M. BREAKFAST.

Grapefruit	½	Lean Ham	30 gms.
Eggs	2	Coffee or Tea	
Cream	30 c.c.		

12 M. DINNER.

Broth	120 c.c.	Tomato Salad	100 gms.
Cauliflower	100 gms.	Rhubarb	100 gms.
Rutabago Turnip.....	75 gms.	Celery	50 gms.
Roast Lamb	50 gms.	Butter	10 gms.

5 P. M. SUPPER.

Egg	1	Grapefruit	½
Cold Chicken	20 gms.	Cream	15 c.c.
Vegetable Marrow....	100 gms.	Butter	10 gms.
Egg Plant.....	100 gms.	Coffee or Tea	

Protein 53 gms. Fat 53 gms. Carbo. 29 gms. Cal. 805.

3rd Day.

8 A. M. BREAKFAST.

Grapefruit	½	Cream	30 c.c.
Eggs	2	Coffee or Tea	
Bacon	20 gms.		

12 M. DINNER.

Broth	120 c.c.	String Beans	100 gms.
Lamb Chop	60 gms.	Cabbage Salad	100 gms.
Carrots	75 gms.	Butter	10 gms.

5 P. M. SUPPER.

Perch	40 gms.	Grapefruit	½
Egg	1	Cream	30 c.c.
Egg Plant	100 gms.	Butter	10 gms.
Asparagus Tips	100 gms.	Coffee or Tea	
Tomato Salad	100 gms.		

Protein 62 gms. Fat 80 gms. Carbo. 32 gms. Cal. 1096.

4th Day.

8 A. M. BREAKFAST.

Grapefruit	½	Cream	30 c.c.
Eggs	2	Coffee or Tea	
Bacon	20 gms.		

12 M. DINNER.

Broth	120 c.c.	Wine Gelatine	120 gms.
Broiled Squab	50 gms.	Grapefruit	½
Tomatoes	100 gms.	Butter	10 gms.
Spinach	100 gms.	Cream	15 c.c.
Lettuce	50 gms.	Coffee or Tea	

5 P. M. SUPPER.

Cold Chicken	30 gms.	Coffee Bavarian Cream	
Cottage Cheese	50 gms.	Cream	30 c.c.
Vegetable Marrow ...	150 gms.	Butter	10 gms.
Mushrooms	75 gms.	Coffee or Tea	
Tomato Salad	50 gms.		

Protein 65 gms. Fat 90 gms. Carbo. 32 gms. Cal. 1188.

5th Day.

8 A. M. BREAKFAST.

Grapefruit	½	Bran Muffin	1
Eggs	2	Cream	30 c.c.
Bacon	20 gms.	Coffee or Tea	
Butter	10 gms.		

12 M. DINNER.

Stock Soup	120 c.c.	Rhubarb	100 gms.
Roast Lamb	50 gms.	Butter	20 gms.
String Beans	100 gms.	Cream	30 c.c.
Cabbage	100 gms.	Coffee or Tea	
Tomato Salad	100 gms.		

5 P. M. SUPPER.

Broiled Squab (meat) 50 gms.	Custard	120 gms.
Broiled Onions 75 gms.	Cream	30 c.c.
Egg Plant 100 gms.	Butter	20 gms.
Romaine Salad 50 gms.	Bran Muffin	1
Protein 66 gms. Fat 105 gms. Carbo. 36 gms. Cal. 1353.		

6th Day.

8 A. M. BREAKFAST.

Grapefruit ½	Cream	30 c.c.
Eggs 2	Butter	10 gms.
Bacon 20 gms.	Coffee or Tea	
Bread 10 gms.		

12 M. DINNER.

Stock Soup 120 c.c.	Cranberries	75 gms.
Roast Beef 50 gms.	Bread	10 gms.
Green Peas 50 gms.	Butter	25 gms.
Chicory Salad 25 gms.	Cream	30 c.c.
Celery 50 gms.	Coffee or Tea	
Tomatoes 100 gms.		

5 P. M. SUPPER.

Sardines 40 gms.	Butter	30 gms.
String Beans 100 gms.	Cream	30 c.c.
Cottage Cheese 40 gms.	Coffee or Tea	
Tomato Salad 75 gms.	Whipped Cream Des-	
Bread 10 gms.	sert	120 gms.
Protein 68 gms. Fat 100 gms. Carbo. 46 gms. Cal. 1356.		

7th Day.

8 A. M. BREAKFAST.

Grapefruit ½	Bran Muffin	1
Eggs 2	Cream	30 c.c.
Bacon 20 gms.	Coffee or Tea	
Butter 15 gms.		

12 M. DINNER.

Broth	120 c.c.	Cranberries	100 gms.
Lamb Chop (1)	60 gms.	Bran Muffin	1
Cauliflower	100 gms.	Butter	35 gms.
Green Peas	50 gms.	Cream	30 c.c.
Tomato Salad	100 gms.	Coffee or Tea	

5 P. M. SUPPER.

Cold Chicken	30 gms.	Princess Pudding	
Egg Plant	100 gms.	Bread	20 gms.
Broiled Onions	100 gms.	Butter	30 gms.
Lettuce Salad	50 gms.	Cream	30 c.c.
Cottage Cheese	50 gms.	Coffee or Tea	

Protein 68 gms. Fat 140 gms. Carbo. 56 gms. Cal. 1756.

8th Day.

8 A. M. BREAKFAST.

Grapefruit	½	Butter	15 gms.
Eggs	2	Cream	30 c.c.
Bacon	20 gms.	Coffee or Tea	
Bran Muffin	1		

12 M. DINNER.

Strained Stock Soup ..	120 c.c.	Coffee Bavarian Cream	
Roast Beef	50 gms.	Rye Bread	15 gms.
Brussels Sprouts	100 gms.	Butter	35 gms.
Mushrooms	100 gms.	Cream	30 c.c.
Cucumber Salad	100 gms.	Coffee or Tea	
Olive Oil	½ oz.		

5 P. M. SUPPER.

Lamb Chop	1	Bran Muffin	1
Vegetable Marrow	150 gms.	Butter	30 gms.
Green Peas	50 gms.	Cream	30 c.c.
Tomato Salad	100 gms.	Coffee or Tea	
Diabetic Custard			

Protein 72 gms. Fat 160 gms. Carbo. 64 gms. Cal. 1984.

DIABETIC MENUS, IN WHICH FOOD IS ADDED VERY SLOWLY.

(For severe cases.)

I.

- 8 *A. M.* Broth 120 c.c., asparagus tips 50 gms.,
coffee.
12 *M.* Broth 120 c.c., string beans 50 gms., coffee.
5 *P. M.* Broth 120 c.c., spinach 50 gms., coffee.
Protein 11 gms. Fat 0. Carbo. 5 gms. Cal. 64.

II.

- 8 *A. M.* Broth 120 c.c., 1 egg, celery 50 gms., coffee.
12 *M.* Broth 120 c.c., 1 egg, cabbage 100 gms., to-
mato salad, coffee.
5 *P. M.* Broth 120 c.c., 1 egg, string beans 100
gms., coffee.
Protein 29 gms. Fat 15. Carbo. 10. Cal. 291.

III.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, coffee.
12 *M.* Broth 120 c.c., roast lamb 55 gms., aspara-
gus tips 50 gms., coffee.
5 *P. M.* 1 egg, broth 120 c.c., spinach 100 gms., egg
plant 50 gms., coffee.
Protein 44. Fat 20. Carbo. 15. Cal. 416.

IV.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 15 gms., coffee.
cream 15 c.c.

- 12 M. Broth 120 c.c., roast beef 55 gms., string beans 100 gms., Brussels sprouts 100 gms., coffee, cream 15 c.c., butter 5 gms.
- 5 P. M. Cold chicken 35 gms., 1 egg, vegetable marrow 100 gms., spinach 100 gms., coffee, cream 15 c.c., butter 5 gms.
- Protein 57. Fat 45. Carbo. 20. Cal. 713.

V.

- 8 A. M. Grapefruit $\frac{1}{2}$, 2 eggs, bacon 15 gms., coffee, cream 15 c.c., butter 5 gms.
- 12 M. Broth 120 c.c., chicken 50 gms., cauliflower 100 gms., tomatoes 100 gms., coffee, cream 15 c.c., butter 10 gms.
- 5 P. M. Sardines 40 gms., 1 egg, asparagus tips 100 gms., creamed celery 50 gms., (30 c.c. cream), lettuce salad 50 gms., coffee, cream 15 c.c., butter 10 gms.
- Protein 55. Fat 70. Carbo. 20. Cal. 930.

VI.

- 8 A. M. Grapefruit $\frac{1}{2}$, 2 eggs, bacon 15 gms., coffee, cream 30 c.c., butter 10 gms.
- 12 M. Broth 120 c.c., fish 50 gms., Brussels sprouts 100 gms., string beans 50 gms., sliced cucumbers 50 gms., rhubarb 100 gms., coffee, cream 30 c.c., butter 15 gms.

- 5 *P. M.* Cold chicken 25 gms., cottage cheese 50 gms., egg plant 100 gms., asparagus 50 gms., coffee, cream 30 c.c., butter 15 gms., lettuce 50 gms. with olive oil 15 c.c. and lemon juice.

Protein 57. Fat 90. Carbo. 25. Cal. 958.

VII.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 20 gms., coffee, cream 30 c.c., butter 10 gms.

- 12 *M.* Broth 120 c.c., roast lamb 50 gms., sauerkraut, 100 gms., tomatoes 100 gms., lettuce 50 gms. with olive oil 15 c.c. and lemon juice, coffee, cream 30 c.c., butter 25 gms., wine gelatin, 120 gms.

- 5 *P. M.* Cold ham 25 gms., cottage cheese 50 gms., spinach 100 gms., rhubarb 100 gms., sliced tomatoes 50 gms., coffee, cream 30 c.c., butter 25 gms.

Protein 58. Fat 110. Carbo. 25. Cal. 1322.

VIII.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 20 gms., coffee, cream 30 c.c., butter 15 gms.

- 12 *M.* Stock soup 120 c.c., chicken 50 gms., carrots 75 gms., celery 25 gms., cauliflower 100 gms., sliced tomatoes 75 gms., rhubarb 100 gms., coffee, cream 30 c.c., butter 35 gms.

- 5 *P. M.* Cold beef 25 gms., cottage cheese 50 gms., asparagus tips 50 gms., string beans 50 gms., lettuce 50 gms. with 15 c.c. olive oil and lemon juice, coffee, cream 30 c.c., butter 35 gms.

Protein 57. Fat 132. Carbo. 30. Cal. 1536.

IX.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 20 gms., coffee, cream 60 c.c., butter 15 gms.

- 12 *M.* Stock soup 120 c.c., turkey 50 gms., $\frac{1}{2}$ dill pickle, squash 75 gms., egg plant 100 gms., cucumbers 50 gms., with 15 c.c. olive oil and lemon juice, rhubarb 100 gms., coffee, cream 30 c.c., butter 35 gms.

- 5 *P. M.* Cold ham 40 gms., 1 egg, spinach 100 gms., tomatoes 100 gms., lettuce 50 gms. with 15 c.c. olive oil and lemon juice, coffee, cream 30 c.c., butter 35 gms.

Protein 58. Fat 156. Carbo. 30. Cal. 1756.

X.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 20 gms., coffee, cream 60 c.c., butter 15 gms.

- 12 *M.* Broth 120 c.c., ripe olives 10 gms., roast beef 50 gms., French peas 50 gms., cabbage 100 gms., sliced tomatoes 75 gms., grapefruit $\frac{1}{2}$, coffee, cream 60 c.c., butter 40 gms.

- 5 *P. M.* Cold chicken 25 gms., cottage cheese 50 gms., broiled onions 75 gms., asparagus tips 50 gms., lettuce 50 gms. with 30 c.c. olive oil and lemon juice, coffee, cream 60 c.c., butter 40 gms.

Protein 60. Fat 182. Carbo. 35. Cal. 2018.

XI.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., butter 15 gms.

- 12 *M.* Broth 120 c.c., ripe olives 10 gms., scraped beef 50 gms., lima beans 50 gms., spinach 100 gms., romaine 50 gms. with 15 c.c. olive oil and lemon juice, coffee, cream 60 c.c., butter 40 gms.

- 5 *P. M.* Cold ham 35 gms., cottage cheese 50 gms., creamed celery 100 gms. (30 c.c. cream), lettuce 50 gms. with 15 c.c. olive oil and lemon juice, rhubarb 100 gms., coffee, cream 30 c.c., butter 40 gms.

Protein 70. Fat 185. Carbo. 35. Cal. 2085.

XII.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., butter 15 gms.

- 12 *M.* Strained stock soup 120 c.c., chicken 50 gms., French peas 50 gms., cabbage 100 gms., lettuce 50 gms. with 15 c.c. olive oil and lemon juice, gooseberries 75 gms., ripe olives 10 gms., butter 40 gms., coffee, cream 60 c.c.

- 5 *P. M.* Sardines 35 gms., cottage cheese 50 gms., spinach 125 gms., squash 75 gms., chicory 25 gms. with 15 c.c. olive oil, rhubarb 100 gms., coffee, cream 60 c.c., butter 40 gms.

Protein 70. Fat 187. Carbo. 40. Cal. 2123.

XIII.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., butter 15 gms.
- 12 *M.* Broth 120 c.c., fish 75 gms., ripe olives 10 gms., celery 25 gms., parsnips 50 gms., sauerkraut 100 gms., tomatoes 50 gms., rhubarb 100 gms., coffee, cream 60 c.c., butter 40 gms.
- 5 *P. M.* Cold ham 30 gms., cottage cheese 40 gms., broiled onions 75 gms., egg plant 100 gms., lettuce 50 gms. with olive oil 30 c.c. and lemon juice, gooseberries 75 gms., coffee, cream 60 c.c., butter 40 gms.

Protein 70. Fat 185. Carbo. 40. Cal. 2105.

XIV.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., butter 15 gms.
- 12 *M.* Broth 120 c.c., ripe olives 10 gms., beef tenderloin 50 gms., cauliflower 100 gms., carrots 75 gms., lettuce 50 gms. with 15 c.c. olive oil, sliced oranges 75 gms., coffee, cream 60 c.c., butter 40 gms.

- 5 *P. M.* Cold chicken 40 gms., cottage cheese 50 gms., French peas 50 gms., spinach 150 gms., chicory 25 gms. with 15 c.c. olive oil, rhubarb 100 gms., coffee, cream 60 c.c., butter 40 gms.

Protein 74. Fat 185. Carbo. 40. Cal. 2121.

XV.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., butter 15 gms.
- 12 *M.* Stock soup 120 c.c., chicken 50 gms., $\frac{1}{2}$ dill pickle, string beans 100 gms., parsnips 50 gms., celery 25 gms., sliced tomatoes 100 gms., gooseberries 100 gms., coffee, cream 60 c.c., butter 40 gms.
- 5 *P. M.* Cold ham 35 gms., cottage cheese 50 gms., broiled onions 75 gms., asparagus tips 100 gms., lettuce 50 gms. with 30 c.c. olive oil, stewed apple (no sugar) 50 gms., coffee, cream 60 c.c., 40 gms. butter.

Protein 74. Fat 185. Carbo. 45. Cal. 2141.

XVI.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., butter 15 gms.
- 12 *M.* Stock soup 120 c.c., roast lamb 75 gms., Brussels sprouts, lima beans 50 gms., spinach 150 gms., 2 ripe olives, watercress 25 gms. with 15 c.c. olive oil, cranberries 100 gms., coffee, cream 60 c.c., butter 40 gms.

- 5 *P. M.* Sardines 30 gms., egg plant 100 gms., carrots 75 gms., lettuce 50 gms. with 15 c.c. olive oil, stewed apple 50 gms., coffee, cream 60 c.c., butter 40 gms., cottage cheese 40 gms.

Protein 75. Fat 185. Carbo. 45. Cal. 2145.

XVII.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., butter 15 gms.
- 12 *M.* Broth 120 c.c., bread 10 gms., roast beef 65 gms., French peas 50 gms., vegetable marrow 100 gms., tomatoes 125 gms, lettuce 50 gms., with 15 c.c. olive oil, cranberries 100 gms., coffee, cream 60 c.c., butter 40 gms.
- 5 *P. M.* Cold chicken 30 gms., cottage cheese 50 gms., broiled onions 75 gms., asparagus tips 75 gms., celery 50 gms., stewed apples 50 gms., coffee, cream 60 c.c., butter 40 gms.

Protein 74. Fat 185. Carbo. 50. Cal. 2161.

XVIII.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., bread 10 gms., butter 15 gms.
- 12 *M.* Broth 120 c.c., chicken 50 gms., parsnips 50 gms., spinach 100 gms., cabbage 100 gms., romaine 50 gms. with 15 c.c. olive oil, sliced oranges 75 gms., coffee, 60 c.c., butter 40 gms.

- 5 *P. M.* Cold ham 30 gms., cottage cheese 50 gms.,
egg plant 100 gms., squash 75 gms., sliced
tomatoes 50 gms., stewed apple 50 gms.,
coffee, cream 60 c.c., butter 35 gms.

Protein 76. Fat 185. Carbo. 50. Cal. 2169.

XIX.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, bread 10 gms., 2 eggs, bacon
30 gms., coffee, cream 30 c.c., butter 15
gms.

- 12 *M.* Stock soup 120 c.c., roast lamb 75 gms.,
cauliflower 100 gms., lima beans 50 gms.,
vegetable marrow 100 gms., cucumbers
50 gms. with 15 c.c. olive oil with lemon,
gooseberries 75 gms., coffee, cream 60
c.c., butter 40 gms., bread 10 gms.

- 5 *P. M.* Sardines 50 gms., broiled onions 75 gms.,
egg plant 100 gms., lettuce 50 gms. with
15 c.c. olive oil, stewed apple 75 gms.,
coffee, cream 60 c.c., butter 35 gms.

Protein 76. Fat 185. Carbo. 55. Cal. 2189.

XX.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., bread
10 gms., butter 15 gms., coffee, cream 60
c.c.

- 12 *M.* Broth 120 c.c., bread 10 gms., broiled fish
75 gms., Brussels sprouts 100 gms., car-
rots 75 gms., spinach 100 gms., $\frac{1}{2}$ dill
pickle, tomato salad 50 gms., sliced
oranges 75 gms., coffee, cream 30 c.c.,
butter 40 gms.

- 5 *P. M.* 1 lamb chop, cottage cheese 50 gms., French peas 50 gms., lettuce 50 gms. with 30 c.c. olive oil, baked apple 150 gms., coffee, cream 60 c.c., creamed celery with 30 c.c. cream, butter 35 gms.

Protein 78. Fat 185. Carbo. 60. Cal. 2217.

XXI.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., bread 10 gms., butter 15 gms., coffee, cream 60 c.c.
- 12 *M.* Stock soup 120 c.c., small steak 75 gms., vegetable marrow 100 gms., sauerkraut 100 gms., lima beans 50 gms., watercress 25 gms. with 15 c.c. olive oil and lemon juice, raw apple 150 gms., bread 10 gms., butter 40 gms., coffee, cream 60 c.c.
- 5 *P. M.* Cold chicken 35 gms., cottage cheese 50 gms., broiled onions 75 gms., egg plant 100 gms., tomato salad 50 gms. with 15 c.c. olive oil and lemon juice, gooseberries 75 gms., bread 10 gms., butter 40 gms., coffee, cream 60 c.c.

Protein 78. Fat 185. Carbo. 70. Cal. 2257.

XXII.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., bread 15 gms., butter 15 gms., coffee, cream 60 c.c.

- 12 M. Stock soup 120 c.c., chicken 75 gms., $\frac{1}{2}$ dill pickle, Brussels sprouts 100 gms., French peas 50 gms., tomatoes 100 gms., lettuce 50 gms., with 15 c.c. olive oil and lemon juice, raw apple 150 gms., bread 10 gms., butter 40 gms., coffee, cream 60 c.c.
- 5 P. M. Cold ham 35 gms., cottage cheese 50 gms., carrots 75 gms., asparagus tips 100 gms., rhubarb 100 gms., bread 10 gms., butter 40 gms., watercress 25 gms. with 15 c.c. olive oil and lemon juice, coffee, cream 60 c.c.

Protein 78. Fat 185. Carbo. 75. Cal. 2277.

XXIII.

- 8 A. M. Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., bread 15 gms., coffee, cream 60 c.c., butter 20 gms.
- 12 M. Stock soup 120 c.c., roast beef 65 gms., mashed potatoes 100 gms., squash 75 gms., cabbage 100 gms., cucumber salad 50 gms., cranberries 75 gms., bread 10 gms., butter 40 gms., coffee, cream 60 c.c.
- 5 P. M. One lamb chop 50 gms., cottage cheese 50 gms., broiled onions 75 gms., vegetable marrow 100 gms., shredded lettuce 25 gms. with 15 c.c. olive oil, rhubarb 50 gms., bread 15 gms., butter 40 gms., coffee, cream 60 c.c.

Protein 78. Fats 185. Carbo. 80. Cal. 2297.

XXIV.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon 30 gms., coffee, cream 60 c.c., bread 15 gms., butter 20 gms.
- 12 *M.* Stock soup 120 c.c., roast lamb 65 gms., mashed potatoes 100 gms., string beans 100 gms., parsnips 50 gms., romaine salad 50 gms. with 15 c.c. olive oil, gooseberries 75 gms., bread 15 gms, butter 40 gms., coffee, cream 60 c.c.
- 5 *P. M.* Cold beef 35 gms., cottage cheese 50 gms., egg plant 100 gms., carrots 75 gms., tomato salad 50 gms. with 15 c.c. olive oil, rhubarb 100 gms., coffee, cream 60 c.c., bread 15 gms., butter 40 gms.
- Protein 75. Fat 182. Carbo. 85. Cal. 2278.

A trace of sugar was found after diet 24, so a vegetable and egg day was given on the 25th day, followed by a general diabetic diet on the 26th day.

XXV.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, black coffee.
- 12 *M.* Broth 120 c.c., 1 egg, string beans 100 gms., cauliflower 100 gms., tomato salad 75 gms., rhubarb 100 gms., black coffee.
- 5 *P. M.* Broth 120 c.c., 1 egg, asparagus tips 100 gms., spinach 150 gms., lettuce salad 50 gms., $\frac{1}{2}$ grapefruit, black coffee.
- Protein 36. Fats 20. Carbo. 30. Cal. 444.

XXVI.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, 20 gms. bacon, coffee, cream 30 c.c., butter 10 gms.
- 12 *M.* Broth 180 c.c., small steak 75 gms., Brussels sprouts 100 gms., spinach 100 gms., ripe olives 3, watercress salad 25 gms. with 15 c.c. olive oil and lemon juice, rhubarb 100 gms., 1 bran muffin, coffee, cream 15 c.c., butter 25 gms.
- 5 *P. M.* Cold meat 30 gms., 1 egg, broiled onions 100 gms., vegetable marrow 100 gms., shredded lettuce 25 gms. with $\frac{1}{2}$ oz. olive oil and lemon juice, gooseberries 100 gms., coffee, cream 30 c.c., butter 25 gms., 1 bran muffin.

Protein 70. Fats 150. Carbo. 40. Cal. 1790.

DIABETIC MENUS.

The servings of foods in the following menus are of the average size. Stewed vegetables, 3-4 tablespoons; Salad, about 2 ounces; Cream, 1-2 ounces with each meal; Butter 1-2 tablespoons with each meal.

I.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon, cream, butter, coffee, 1 almond muffin.
- 12 *M.* Cream of Tomato 3 oz., baked beef tenderloin, fresh spinach, creamed celery, dill pickle, Romaine salad (olive oil with lemon juice), gooseberries, bran muffin, butter, coffee, cream, salted almonds.

- 5 *P. M.* 1 lamb chop, 1 egg, mushrooms, Neuf. cheese, string beans, watercress salad (olive oil and lemon juice), custard, almond muffin, coffee, cream, butter.

II.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon, butter, cream, 1 almond muffin.
- 12 *M.* Cream of asparagus, broiled chicken, Brussels sprouts, tomatoes, ripe olives, celery and nut salad with lemon juice and oil, diabetic ice-cream, bran muffin, coffee, cream and butter.
- 5 *P. M.* Cold meat, 1 egg, Cottage cheese, asparagus tips, 1 almond muffin, head lettuce salad, wine jelly with whipped cream, coffee, cream and butter.

III.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, fish, butter, cream, coffee, 1 almond muffin.
- 12 *M.* Cream of spinach 3 oz., roast lamb, English walnuts, tomatoes, ripe olives, cabbage, cucumber salad, Princess pudding, 1 almond muffin, butter, coffee, cream.
- 5 *P. M.* Small steak, 1 egg, asparagus tips, egg plant, cranberry sauce, shredded lettuce (olive oil and lemon juice), wine jelly with whipped cream, butter, coffee, cream.

IV.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 2 eggs, bacon, coffee, butter, cream, almond muffin.
- 12 *M.* Cream of mushroom, roast beef, ripe olives, cauliflower, string beans, English walnuts, watercress salad, fresh rhubarb, coffee, cream, almond muffin, butter.
- 5 *P. M.* Sardines, 1 egg, broiled onions, tomatoes, romaine salad, coffee souffle, coffee, almond muffin, cream, butter, Cottage cheese.

V.

- 8 *A. M.* Grapefruit $\frac{1}{2}$, 1 egg, bacon, 1 bran muffin, coffee, cream, butter.
- 12 *M.* Consomme, radishes, roast chicken, spinach, asparagus, ripe olives, lettuce salad with lemon, diabetic ice-cream, coffee, cream, butter, 1 almond muffin.
- 5 *P. M.* Cold meat, 1 egg, rhubarb, Cottage cheese, string beans, grapefruit and nut salad, 1 bran muffin, coffee, cream, butter.

VI.

- 8 *A. M.* Rhubarb, 2 eggs, broiled ham, bran muffin, butter, coffee, cream.
- 12 *M.* Cream of celery, broiled steak, vegetable marrow, egg plant, dill pickle, tomato salad, coffee Bavarian cream, bran muffin, butter, coffee, cream.

- 5 P. M. Veal cutlet, American cheese, mushrooms, spinach, lettuce salad with olive oil and lemon juice, whipped cream dessert, bran muffin, coffee, cream, butter.

SPECIAL DIABETIC RECIPES.

DIABETIC BREADS.

Bran Muffins.

3 eggs, 2 cups of bran, 1 tablespoon of butter.

Mix these well, using yolk of egg only.

1 cup of buttermilk, one-half teaspoon of soda, one-half teaspoon of salt, one-third cup of chopped English walnuts.

Mix these and add to the first mixture. Lastly, add the stiffly beaten whites of eggs. Bake in muffin pans in moderate oven 30-35 minutes. This recipe makes 8 or 9 muffins.

Almond Muffins.

Whites of 5 eggs, 2 tablespoons of melted butter, 1 cup of ground almonds, one-half teaspoon of baking powder.

Beat whites of eggs stiffly. Add other ingredients and bake in moderate oven 10 to 15 minutes.

DIABETIC SOUPS.

Cream of Asparagus Soup.

3 tablespoons cream, 2 tablespoons water, 1 tablespoon strained asparagus, few grains of salt.

Strain asparagus tips, add cream, water and salt. Heat and serve at once.

Cream of Tomato Soup.

2 tablespoons cream, 2 tablespoons water, few grains of salt, 1 tablespoon strained tomatoes, $\frac{1}{8}$ teaspoon soda.

Heat cream and water in double boiler. Heat tomatoes and when boiling add soda and add to first mixture. Season and serve.

Cream of Spinach Soup.

3 tablespoons cream, 3 tablespoons water, 1 teaspoon strained spinach, few grains of salt.

Strain spinach, add to hot cream and water. Season and serve.

Cream of Chicken Soup.

3 tablespoons cream, 3 tablespoons chicken broth, 1 egg, few grains of salt.

Heat cream and broth. Beat egg lightly. When cream and broth are hot remove them from the fire and add egg and salt, mixing thoroughly.

Tomato Bouillon.

3 tablespoons strained tomatoes, 3 tablespoons beef broth, $\frac{1}{8}$ teaspoon salt, few grains of pepper.

Heat and serve at once.

EGGS.

Poached Egg.

Drop an egg into a pan of boiling water. Turn out fire and keep in a warm place. Cook egg from 5 to 10 minutes to suit taste. Remove from water and serve with salt and pepper and a small piece of butter.

Foamy Omelet.

1 egg yolk, 1 egg white, 1 tablespoon cream, 1 teaspoon butter, pinch of salt.

Beat egg yolk slightly. Add cream and salt. Heat frying pan and put butter in it. Fold the well-beaten egg white into the first mixture. Turn into frying pan and cook about two or three minutes over direct fire (not too hot). Transfer to oven and finish with a slow fire. Serve on hot plate as soon as removed from oven.

Baked Egg.

2 tablespoons cream, 1 egg, 1 tablespoon water, few grains salt. (Small piece of grated cheese, if desired.)

Break egg into a small porcelain mould. Add cream, water and salt. Set into a vessel of boiling water and cook in a moderate oven 5 to 10 minutes.

Egg Salad.

One egg coddled in hot (not boiling) water 30-45 minutes. Cut egg in two, lengthwise. Remove yolk and rub through a fine sieve. Season with salt, pepper, butter and a little lemon juice. Roll into a ball and replace in white. Cut a thin layer of pimento and place on inner border of white. Serve on lettuce.

MEATS.

Broiled Lamb Chops or Steak.

Place meat on broiler under direct fire. Sear quickly on each side, then cook with lower flame. When done as desired, remove from broiler and season with salt and pepper and a small piece of butter.

Broiled Chicken or Squab.

Place fowl in broiling pan and put butter under and over it. Cook in broiler with slow fire for 30-40 minutes, turning and basting occasionally. Season and serve as desired.

Chicken Croquettes.

$\frac{1}{4}$ cup chopped chicken, $\frac{1}{2}$ egg, pinch of salt, few grains of pepper.

Chop chicken finely, add egg and seasoning. Fry in deep fat until the croquette is a rich brown color. (Fish croquettes may be used by substituting fish for chicken.)

Roast Beef or Lamb.

Roast in oven in the same way in which one would do for the normal individual, but do not use a farinaceous material in the preparation of these meats.

VEGETABLES.

Asparagus.

Cut off the ends of the stalks, if they are white or tough. Cook in boiling salted water 20-30 minutes. Drain and serve with butter sauce or with cream.

Cauliflower.

Remove leaves and stalk and let stand in cold salted water for one hour. Drain and cook 20-30 minutes in boiling water. Serve with butter sauce or with Hollandaise sauce.

Hollandaise Sauce.

1 egg yolk, 1 tablespoon butter, 2 teaspoons lemon juice, 2 tablespoons hot water, $\frac{1}{8}$ teaspoon salt, few grains of pepper.

Put egg yolk, butter and lemon juice in small double boiler (or in some saucepan set in a larger pan of boiling water). Stir constantly until the mixture thickens and butter is well mixed. Add slowly one tablespoon of butter (melted) and seasoning.

Boiled Cabbage.

Remove outer leaves from cabbage. Slice and cook in boiling salted water for 1 hour. Drain and season with salt, butter and pepper or with cream.

Cabbage Salad.

Slice cabbage enough for one serving. Mix with this a little green olives, celery, pimento and chopped English walnuts. Add a little lemon juice and vinegar and serve in a head lettuce cup.

String Beans.

Pick over string beans. Cook in boiling water for 1 to 3 hours. Drain and season with salt, pepper and butter (and cream if desired) and allow to cook for 5 to 10 minutes, then serve.

String Bean Salad.

Cook beans until tender. Drain and allow to cool. Chop and add to them a little pimento and celery. Serve with French dressing or with unsweetened Mayonnaise.

Spinach.

Pick over spinach, taking out any bad or dry leaves and any heavy stems. Boil 20 minutes in salted water. Drain and serve with butter sauce.

Spinach Salad.

Cook spinach in boiling water until tender. Drain and chop and add hard cooked egg (chopped), paprika, lemon juice and a little pimento. Roll into balls and serve on lettuce.

Sauerkraut.

Cook sauerkraut with lamb ribs for 1 to 3 hours. It may be cooked in the same way without the meat and seasoned with bacon fat or butter.

Creamed Celery.

Clean celery and cut into small pieces. Cook in boiling salted water about 30 minutes. Drain and add cream. Cook 2 to 3 minutes and serve hot.

Celery and Nut Salad.

Cut celery into small pieces. Chop English walnuts moderately fine. Marinate in French dressing and serve in head lettuce cup.

Celery and Cheese Salad.

Cut celery into strips 2 inches long. Let stand in iced or very cold water until crisp. Mix a small amount of Neufchatel or Cottage cheese with a little cream, salt and pimento. Fill strips of celery with this and serve on lettuce.

Brussels Sprouts.

Pick over the Brussels sprouts, removing any outside material unfit for use. Put in boiling water (salted) and cook 20 to 30 minutes. Drain and season with butter sauce.

Egg Plant.

Cut egg plant into slices. Pare and let stand in salt water 1-2 hours. Beat an egg lightly and dip slices of egg plant into this. Saute in frying pan, with slow fire.

Kohl-rabi.

Pare kohl-rabi and cook until very tender in boiling salted water. Drain and add cream or butter sauce.

Vegetable Marrow.

Cut the vegetable marrow into small pieces, removing all rind and seeds. Cook in a very small amount of water 30-40 minutes. Drain and mash. Serve with salt and butter.

Broiled Onions.

Clean onions under water. Cook for one hour or longer if necessary in boiling salted water. Drain. Cut into slices and broil with butter until nicely browned.

Rhubarb.

Wash and peel rhubarb. Cut into small pieces and cook 5 to 10 minutes in very little water. Remove from fire and sweeten with saccharin. Care must be taken in using saccharin that one does not use too much as this makes the food bitter.

Cheese and Tomato Salad.

Peel and chill one small tomato. Scoop out seeds and small amount of the pulp. Mix equal parts of Neufchatel and American or Swiss cheese grated finely. Add to this small amount of chopped olives, pimento and celery. Fill tomato with this and serve on lettuce leaves.

Cucumber and Watercress Salad.

Peel cucumber and cut into thin slices. Allow this to stand 20-30 minutes in cold salted water. Drain and serve on a lettuce leaf combined with sprigs of water cress. Serve with French dressing or with vinegar.

Cheese Sandwiches.

Cut thin slices of American or brick cheese. Spread with caviar, Norwegian or Russian, and serve on lettuce leaves.

Rarebit.

Beat one egg slightly. Add one tablespoon water and one tablespoon cream. Cook as though scrambling. Add few grains of salt and pepper. Remove from fire and add two tablespoons of grated cheese. (American or Neufchatel may be used.)

Mushrooms.

Clean and peel six or eight medium sized mushrooms. Saute in butter about 5 minutes, add cream and cook until tender. Season with salt and pepper.

DIABETIC DESSERTS.

Whipped Cream Dessert.

$\frac{1}{2}$ cup of cream, $\frac{1}{2}$ cup of boiling water, $\frac{1}{4}$ envelope of gelatin, $\frac{1}{4}$ cup of cold water, $\frac{1}{4}$ grain of saccharin, $\frac{1}{4}$ cup of chopped English walnuts.

Soak gelatine in cold water for 10-15 minutes. Dissolve this with boiling water. Allow this to stand until cool. Beat cream stiffly and add it with the nuts to the first mixture. Put into molds and set in ice-box to chill.

Custard.

1 cup of cream, $\frac{1}{4}$ grain of saccharin, 2-3 drops of vanilla, 1 egg.

Beat egg lightly. Add other ingredients and put into molds. Set molds in a pan of boiling water and bake in a moderate oven. When a

silver knife, thrust into the custard, will come out clean the custard is done. Remove from pan of water immediately upon taking from the oven.

Ice-Cream.

Use the same recipe that is used for custard and freeze, instead of baking. One-third of the recipe makes a good individual serving.

Coffee Bavarian Cream.

2 tablespoons of coffee infusion, $\frac{3}{4}$ teaspoon of gelatin, 1 teaspoon of cold water, 1 tablespoon of boiling water, 1 egg, $\frac{1}{2}$ grain of saccharin, 2 tablespoons of cream, $\frac{1}{4}$ teaspoon of vanilla.

Soak gelatin for 5-10 minutes in cold water, dissolve with boiling water. Scald coffee and $\frac{1}{2}$ of the cream. Add egg yolk, slightly beaten, and cook until the mixture thickens. Remove from the fire and add gelatin. Cool, add remainder of the cream, stiffly beaten, saccharin, vanilla, and well beaten white of egg. Turn into mold and chill.

Princess Pudding.

$\frac{3}{4}$ teaspoon of gelatin, 1 tablespoon of boiling water, $\frac{1}{4}$ grain of saccharin, 1 tablespoon of cold water, 2 tablespoons of lemon juice, 1 egg.

Soak gelatin for 5-10 minutes in cold water, dissolve in boiling water. Beat egg yolk until thick and lemon colored. Add this to gelatin. Add gradually the lemon juice, then the saccharin and stiffly beaten white of egg. Turn into a mold and chill.

Sherry Gelatin.

2 teaspoons of gelatin, 1 cup of boiling water, $\frac{1}{4}$ cup of sherry, $\frac{1}{4}$ cup of cold water, 2 tablespoons of port wine, $\frac{1}{2}$ grain of saccharin.

Soak gelatin in cold water, dissolve in boiling. Add rest of the ingredients. Put into molds and allow to set in ice-box. Serve plain or with whipped cream.

HAINES' TEST FOR SUGAR IN THE URINE.

Haines' test is chosen because it seems to offer greater ease of performance and less chance of error in interpretation than other tests.

The solution contains: Pure copper sulphate 30 grains, distilled water $\frac{1}{2}$ oz. Dissolve the copper in the water; add pure glycerin $\frac{1}{2}$ oz. Mix thoroughly and add liquor potassae 5 oz.

Put about one teaspoonful of this solution in a test tube, boil gently over an alcohol or Bunsen burner, add 6 to 8 drops of urine, and again bring to a boil. The presence of sugar is indicated by a yellow or yellow-red precipitate.

CHAPTER IV.

GOUT

Gout is a definite disease, with definite symptoms, characteristic blood and urinary findings and a fairly well defined course. Gout is an inflammation of the joints, associated with or caused by a retention of uric acid in the blood, and, except in the beginning of an acute attack, lessened excretion in the urine. As a rule in true gout there is a deposit of the sodium salt or uric acid somewhere in the body—the lobe of an ear, the joint itself, over the elbow, in front of the knee—a chalky white deposit with a characteristic appearance under the microscope.

These words picture true gout, which, although comparatively rare in this country, may be seen when looked for. Many other conditions have unfortunately been associated with gout—under the name “goutiness,” “uric acid diathesis,” etc., but at the present time such a grouping is unwise and misleading. The urine of many persons will on standing precipitate a large amount of uric acid or its salts, but this is not gout and in no way related to it. “An excess of uric acid” often reported in urine analyses usually means a physical-chemical change in the urine, and is quite different from the small amount usually excreted in gout.

The uric acid which is retained in the blood stream in gout is derived from two sources: 1, protein food

rich in nuclei—the nucleo-proteins [exogenous uric acid]; 2, destruction of cells *in the body* [endogenous uric acid]: These nucleo-proteins, whether they originate from the food or from the constant cell destruction occurring during normal life, are called the “purin bodies.” The difference between a normal and a gouty person is this: purin bodies are taken with food by both, and also arise from normal body activity in both, but a normal person excretes his excess, whereas the gouty person can not excrete his and it remains in the blood.

The treatment of gout can be considered under two main headings: (1), prevent the formation of uric acid; (2), facilitate its elimination. Since uric acid arises from two sources the exogenous (food) and endogenous (cell destruction), and since it is obviously more difficult to control cell activity than the food intake, the necessity of careful dietary regulation is at once apparent. The traditional association of gout with high livers and drinkers is of course based on facts. Excessive eating really means a potential increase in the uric acid precursors from cell destruction as well as an actual increase from external sources; for it has been shown that excessive work put upon the digestive glands causes an increased formation of endogenous uric acid.

The food of a gouty patient must be regulated from every direction—quantity, quality and habits of eating. Not only must the purin metabolism be considered, but in many instances careful attention must

be paid to the carbohydrates, for gouty individuals often show glycosuria; to the kidneys which not infrequently are affected; and to the weight of the patient, for obesity should be avoided. The best results in treating a gouty patient would be obtained in an institution where the patient can be "tested out" just as a diabetic is tested, and where a tolerance limit for purins can be established.

During an acute attack of gout a "purin-free diet," such as Chace recommends, can be given.

Breakfast: Apple or banana, cream of wheat or farina with cream and sugar, one egg, cup of cereal coffee with cream and sugar, toast and butter.

Dinner: One egg, baked potato with butter, string beans, rice or macaroni, baked apple with sugar, a glass of milk.

Supper: Rice with butter, cream cheese, bread and butter, stewed pears, rice pudding.

The diet for chronic gout must be well balanced and should maintain the patient's strength. For a man weighing 150 lbs. Chace recommends 70 gms. of protein (mainly vegetable), 200 gms. carbohydrate, 150 gms. fat (2500 calories). The purin content of the various foods should be understood and the following table from Walker Hall gives the purin content of some commoner foods.

1 Kilogram (2 1/5 lbs.) contains gms. purin.

Milk

Butter

Eggs

Cheese

Farina

Rice

Hominy

Flour

Bread

Cauliflower

Egg plant

Cabbage

Lettuce

Sugar

Potato 0.02

Asparagus 0.21

Lentils 0.38

Peas 0.39

Oatmeal 0.53

Beans 0.63

Halibut 1.00

Cod 0.5

Salmon 1.10

Mutton 0.96

Beef 1.10-2.00

Veal 1.10

Ham 1.10

Pork 1.20

Chicken 1.20

Claret	
Sherry	
Whiskey	
Brandy	
Beer	0.12
Ale	0.14
Porter	0.15
Chocolate	0.70 per pint
Cocoa	1.00 " "
Tea	1.20 " "
Coffee	1.70 " "

There is no essential difference in the purin content of the different meats, chicken or fish; certain of the vegetables are purin free, others contain varying amounts. Of drinks tea, coffee and cocoa are especially rich in purins. Whiskey drinkers are not prone to gout, but beer drinkers are, and although the percentage of purin in beer seems small, a heavy beer drinker will consume large amounts in a day. Certain other points should be remembered. Meats which are boiled contain less uric acid precursors than roast meats. Alcohol, even in the purin-free beverages, should be used only as a *necessary* stimulant. All condiments, certain fruits, as strawberries, oranges, cucumbers, should not be used.

Salt should be used sparingly as it tends to cause a deposit of sodium urates. Water, especially the saline mineral types, has a special use in assisting elimination, but alkalies and alkali waters may cause the deposit of urates and should be avoided.

The essential element in the treatment of gout is individualization of the patient. The remote causes are as important as the uric acid metabolism. Poor habits of living should be corrected, a sedentary life ought to be replaced by mild exercise or massage. Excesses of alcohol or of eating must be replaced by moderation. Certain occupations, such as working with lead, seem to predispose to gout, and it would be folly to diet a lead worker and allow him to continue his dangerous trade.

DIET USED IN MICHAEL REESE HOSPITAL.

Diet Low in Purins.

Soups: Cream soups flavored with cauliflower, carrots, corn, celery and tomatoes.

Vegetables: Cauliflower, cabbage, Brussels sprouts, carrots, lettuce, celery, mushrooms, spinach, watercress, beets, squash, egg-plant, parsnips, potatoes.

Fruits: All fresh and stewed fruits.

Fats: Butter, cream, olive oil, fat bacon.

Cereals: Wheat, corn, rice cereals, macaroni, spaghetti.

Desserts: Simple puddings, tapioca, rice, sago, cornstarch, custards, ices and ice-creams.

Eggs: In any form except hard boiled, 2-3 daily.

Fluids: Milk, water, lemonade, orangeade, buttermilk, grape juice, cider, Vichy.

Breads: White, graham, rye or corn bread, toast, zweibach, crackers, plain cakes.

Avoid: All flesh foods, broths, sauces, gravies made from meats; peas, beans lentils, asparagus, onions; oatmeal, tea, coffee, malt liquors.

Diets for Gout.

Well cooked meat, fish, or chicken may be added to the dinner.

I.

Breakfast: Apple sauce, cereal with cream, 1 egg, weak cocoa, toast and butter.

Dinner: Cream of spinach soup, mashed potatoes, cauliflower with butter sauce, lettuce salad with lemon juice and olive oil, preserves, tapioca cream, milk, white bread and butter.

Supper: 1 egg, baked potato, creamed celery, milk, white bread and butter.

II.

Breakfast: Grapefruit, wheatena with cream, 2 slices crisp bacon, 1 egg, milk flavored with cocoa, toast and butter.

Dinner: Cream of tomato soup, mashed potatoes, breaded egg plant, fruit salad, ice-cream, plain cake, milk, bread and butter.

Supper: Cottage cheese, rice with cream, glazed sweet potatoes, stewed peaches, milk, bread and butter.

III.

Breakfast: Prunes, farina with cream, 2 eggs, milk flavored with tea, toast and butter.

Dinner: Cream of corn soup, browned potatoes, candied carrots, chicory salad with lemon juice and olive oil, jelly, cornstarch pudding, milk, bread and butter.

Supper: 1 egg, creamed potatoes, mushrooms with cream sauce, raspberries, milk, bread and butter.

IV.

Breakfast: Plums, Ralston's with cream, 1 egg, zweibach, milk, toast and butter.

Dinner: Cream of cauliflower soup, mashed potatoes, fresh spinach, watercress salad with lemon juice and oil, jelly, lemon pudding, milk, bread and butter.

Supper: Macaroni with cheese, pickled beets, 1 egg, sliced pineapple, milk, bread and butter.

CHAPTER V.

DISEASES OF THE KIDNEY

ACUTE NEPHRITIS

In acute nephritis the kidney tissue is damaged by inflammation from bacterial or other poison so that it is unable to perform its usual functions. The symptoms arising in acute nephritis are in part due to the damming back into the body of those products of the body chemistry (metabolism) which normally are passed by the kidney from the blood into the ureters. Since little or no urine is passed in this condition, such products of metabolism enter the general circulation, and the symptoms of uraemia or of edema develop as a result. Whether, as has been generally accepted, the uremic symptoms are due to the retention of products of nitrogen metabolism and edema to retention of salts or water, or both; or whether Fischer's theory, that the symptoms are referable to the acidifying of the kidneys and the tissues, be correct cannot be discussed in these pages, although the practical application of both conceptions, as applied to the dietetic management of the disease, will be thoroughly considered.

Using as a basis of treatment the same rational procedure which would be applied to the treatment of an infected finger, we should first of all as nearly as possible allow the kidneys an opportunity to attain

functional rest. The accomplishment of this aim would be easy enough were it not for the fact that kidney rest is incompatible with normal body function: the kidneys must get rid of the toxic metabolic products constantly being formed in ordinary body economy. Some of these substances seem to have a harmful effect on the damaged kidney itself. Therefore, since complete functional rest is impossible and since certain products of metabolism are more harmful than others, we have to select a path to which the kidneys offer least resistance; in other words, we have to try to bring to the kidney substances which in their passage are the least harmful to it.

While there are no means of actually testing which substances harm the kidney, there is much evidence to prove retention of certain substances. The presence of edema shows water retention, which, however, may not necessarily be primary; the small amount of sodium chloride excreted in the urine proves that sodium chloride is retained; and the quantitative determination of non-protein nitrogen or of urea in the blood indicates that nitrogenous end products do not pass through the kidneys in a normal manner. Water, salt and nitrogen are all food elements, so that the role food plays in the management of such a case seems apparent; and the effort to secure a suitable diet in nephritis, either acute or chronic, is one of the most important, if not the most important element in its therapeutics. Food must be selected so that the end products of its metabolism are as far as possible "bland" substances with

regard to the kidney tissue; and especial attention must be paid to the nitrogen, salt and water content. The reason milk has formed the basis of most "cures" of acute nephritis is that (1) milk contains a small salt content; (2) the protein element in milk is not only small, but it is of such a nature that the end-products of its metabolism are comparatively non-toxic; (3) the water content is exactly known, and (4) it is easily digested. One great trouble with milk as an ideal food is that too large amounts are needed to supply enough calories for the nourishment of the body without flooding the body with an excess of water.

In the most acute stage of nephritis perhaps the best way to attain functional renal rest is to give nothing to eat and to allow only water in limited amounts to enter the body. Plain or carbonated water by mouth, ice pellets, or even water per rectum are allowed; but how much each patient should receive must be determined for the individual patient by carefully balancing the amount of urine voided and the extent of edema against the symptoms of uraemia. If the kidneys are secreting any urine at all, somewhat more water should be allowed in the 24 hours than is voided, because water itself is a good diuretic and probably helps "flush" retained poisons through the kidney. The intense thirst of this period may be allayed by the addition of cream of tartar and lemon juice to the water, which makes a pleasant slightly diuretic drink.*

* To one pint boiling water add 1 dram of cream of tartar, the juice of $\frac{1}{2}$ lemon and a little sugar.

How long to maintain a patient merely on water will naturally depend almost entirely on his reaction to treatment. If he is going to react at all, two or three days at most should suffice, and then milk can be added. 600-900 cc. (20 to 30 oz.) of milk will furnish as much water as the body can well handle at this stage, and the additional nourishment can be supplied by other non-irritating bland foods, provided of course the patient is able to eat at all. Such substances as the cereals, poor in salts and protein, dry toast, potato, lactose, and, if digestion is not too impaired, saltless butter will add extra calories; and the citrous vegetables well prepared seem to have a good effect. Such a diet is the so-called salt-free "non-nitrogenous" and has a limited water content, and therefore it combines the principles of the most accepted "cures."

Some specimen menus of such a diet as used by us with analyses are here shown:

WIDAL CURE.

NEPHRITIS DIET.

Salt free bread 200 gms., salt free butter 50 gms., salt free beans or rice 250 gms., meat (beef, chicken or mutton) 200 gms. (salt free), sugar 40 gms. (Contains 1-2 gms. NaCl. 1500 cal.)

Dietaries from this. Salt Free.

8 A. M. Bread 60 gms., lamb chop 50 gms., butter 10 gms., rice 100 gms., sugar 40 gms.

- 12 M. Bread 60 gms., roast beef 100 gms., butter 20 gms., beans 150 gms.
5 P. M. Bread 80 gms., butter 20 gms., chicken 50 gms.

HALPIN.

(Salt Free Nephritic Diet.)

Milk 1500-2000 c.c., white salt-free bread 400-500 gms., butter salt-free 40 gms., eggs 4-6. (Contains 5-6 gms. NaCl.)

Dietary.

- 6 A. M. Milk 200 c.c.
8 A. M. Bread 100 gms., butter 15 gms., 1 egg, milk 300 c.c.
10 A. M. Bread 100 gms., milk 200 gms.
1 P. M. Bread 100 gms., butter 15 gms., 1 egg, milk 300 c.c.
4 P. M. Egg Nog (2 eggs, milk 250 c.c.)
7 P. M. Bread 100 gms., butter 10 gms., 1 egg, milk 250 c.c.

KARELL CURE.

This cure is usually begun by giving 3 to 6 oz. of milk three or four times a day. Gradually the amount given and the number of feedings is increased until the patient is getting about 2 qts. daily. The milk may be given plain but is usually diluted with some alkaline mineral water, as lime water. In the summer the milk is given at room temperature, and in winter

it must be warmed. If the stools remain solid after one week of strict milk diet the amount given is increased to 2 qts daily. If gastric disturbances and diarrhoea result, it is certain that the milk is being improperly digested, and the amount should be temporarily decreased. If constipation result, this is a sign that the milk is agreeing and is being well utilized by the individual, and laxatives and enemata may be used. This condition may also be overcome to some extent by diluting the morning portion of milk with small amounts of coffee and by adding baked apple or prunes to the afternoon's diet. If patient complains of thirst, feedings may be diluted with plain hot water, carbonated water or lime water. If the desire for food is too great to be withstood, herring or stale salt free bread in small amounts may be added, and milk soup thickened with cereal may be given once a week. This cure is usually given for five or six weeks and then a normal diet is gradually resumed, large quantities of milk still being taken.

Martin Fischer has advanced an hypothesis of nephritis based on physical-chemical laws. According to his conception the symptoms of nephritis are due to an acidifying of the tissues of the body with a subsequent osmosis of water. Edema is due not to salt or water retention by the kidneys, but to a disturbance of the general chemical reaction of the tissues which, becoming acid, take up water according to the laws of colloids; uraemia is the result of the same condition in the brain. If this conception is correct, the treatment

outlined by us is incorrect, and Fischer does use a treatment based on his theory. Instead of limiting salt and water intake, he injects into the circulation or through the rectum a large quantity of his solution:

Sodium carbonate (pure crystals)	14
Sodium chloride	10
Distilled water	1000

The salts in this solution reaching the tissues change their chemical reaction, osmosis is reversed, water is withdrawn from the tissues, including the kidney, and free diuresis results.

In clinical practice divergent results have been reported from the use of Fischer's solution. It is rather difficult to reconcile such a radical departure from clinical practice—a practice with at times brilliant results, and we have been loath to employ it generally. In certain cases where anuria or a marked decrease in urinary secretion persisted, Fischer's solution given per rectum has seemed to have a beneficial result, but in other cases no particular advantage over the therapy already outlined could be noted.

CHRONIC NEPHRITIS

Since acute nephritis is very likely to develop into chronic nephritis or to occur as an exacerbation of chronic nephritis, it is logical to continue our dietary discussion of chronic nephritis along the lines already outlined. Assuming that the acute stage is gradually passing and that the patient is reaching a condition in which his kidneys have partially regained the power to

functionate, our method of treating will be correspondingly changed to meet the increased functioning power of the kidney. As the symptoms of uremic poisoning or the edema subside, the additions to the diet must be based not on theory or on generalization, but entirely on the reaction of the individual patient. For example, Mr. P. recovered from an acute nephritis with a complete disappearance of uremic symptoms but with a persistent edema, and in his diet we carefully avoided increasing salt or water, but allowed the gradual addition of carbohydrates, fats, and even a small amount of protein for days before the edema disappeared, when we carefully added salt and water to the diet.

Another patient showing a different effect was Mr. X., in whom the acute stage subsided and all signs of edema and uremia disappeared. This man was kept on a low salt, low protein diet for a long time; his urine was clearing up but he did not feel up to standard and remained anemic. Thinking that perhaps some of his symptoms were due to the absence of protein in the diet, we slowly added meat until his total protein intake was 60 grams. Almost immediately there was a marked general improvement in his condition without any signs of increased renal disturbance. This probably means that in this particular case the kidneys were not harmed by products of protein metabolism, but on the contrary they needed, as did the rest of the body, the elements of nutrition which protein alone can furnish.

Owing to the confusion which exists regarding the proper classification of the chronic nephritides we have so far avoided the use of the older pathological terms, which post mortem experience has shown are of no great service in the therapeutics of the disease. As a matter of fact, all modern studies have attempted to classify nephritis on the basis of function, and many schemes have been devised to discover in the individual patient just what his kidneys can do. Although many of these functional tests have as yet not passed beyond the stage of academic interest, no discussion of diet in chronic nephritis would be complete without mention of the test diets of Hedinger and Schlayer and Mosenthal. By application of a meal known to contain definite amounts of so-called diuretic substances and careful urinalysis, it is hoped that the particular function of the kidney which is harmed will be demonstrated, so that logical dietetic procedures for the particular case can be determined. The test, as modified by Mosenthal and as used by us in detail, is:

THE NEPHRITIC TEST DIET. SALTLESS.

[MOSENTHAL.]

Adapted for use at Michael Reese Hospital.

8 A. M.

{ Oatmeal	100 gms.	Bread	60 gms.
{ Milk	30 c.c.	Butter	20 gms.
{ Sugar	2 tsp.	Water	200 c.c.
{ Coffee	160 c.c.	Milk	200 c.c.
{ Milk	40 c.c.	Salt	3 gms.
{ Sugar	1 tsp.		

12 M.

Meat Soup	180 c.c.	Pudding	110 gms.
Beefsteak	100 gms.	Tea	180 gms.
Potato	130 gms.	Milk	20 c.c.
Green Vegetables...	100 gms.	Sugar	1 tsp.
Green Salad	50 gms.	Water	250 c.c.
Bread	60 gms.	Salt	3 gms.
Butter	20 gms.		

5 P. M.

Eggs	2	Tea	180 c.c.
Bread	60 gms.	Milk	20 c.c.
Butter	20 gms.	Sugar	1 tsp.
Stewed fruit	100 gms.	Water	300 c.c.
		Salt	3 gms.

Total Fluid 1760 cc. Total Protein 81.25. Total Salt 11.
Total Nitrogen 13.

The urine is collected at two hour intervals during the day, and *all* of the night urine is saved separately. The amount and the specific gravity of each specimen is measured, the sodium chloride and nitrogen are determined on the grouped day specimens and on the night specimen.

Unfortunately it is not always a simple matter to interpret the findings from such a test so that they can be made of value in prescribing a diet; and from our standpoint it seems best at present to adopt some other standard. Although, as stated above, the division of cases of chronic nephritis on an anatomical basis of parenchymatous and interstitial nephritis is no longer warranted, from the standpoint of therapeutics we can well group the symptoms supposedly associated with the one type or the other and build our menus for the symptoms. Obviously a case of nephritis with

marked edema and no signs of uremic poisoning is treated differently from one with symptoms of intoxication and no edema; and the plan of diet would vary also.

Now it is a clinical fact that we see most cases of chronic "parenchymatous nephritis" as a sequel to an acute attack, so that the diet for this type logically can be continued where we left off the discussion of acute nephritis. The diet then would have to be fixed almost entirely by the course of the disease. With a patient rapidly recovering from his symptoms we can rapidly increase his diet, bearing in mind always (1) the limitations of his renal function; (2) the necessity of supplying sufficient calories properly to nourish the body; (3) the prevention of undue strain at any particular time. The choice of foods for such a patient is large, and the table given later (page 128) can be consulted. Even though there be no considerable evidence of protein intoxication, it must be borne in mind that there is probably no *pure* type of renal disease, and that all those foods whose metabolic end-products *might* damage the kidneys must be carefully considered. On this basis we would limit the protein to a minimum compatible with health and a feeling of well-being, and in no case of nephritis ought we allow more than 60-70 gms. protein. We have seen several patients whose general as well as renal condition showed definite improvement after protein had been added to a diet maintained too long on a very low nitrogen basis.

This leads naturally to a discussion of the relative toxicity of different kinds of protein food. What may well be called a "traditional prejudice" against red-meat in favor of fish or chicken is certainly not founded on scientific or clinical experiments and is based on the conception that the "extractive" content of red-meat is poisonous. It is true that beef-extract, being rich in purins, is harmful, but it is likewise true that thorough cooking of meat destroys the toxic properties of its extractives. From any other standpoint the protein of meat is the same as the protein of fish or chicken, and we see no reason why a patient may not have a well-done steak if he prefers it to a chicken, and in the same amount he would have of chicken. This does not take into consideration the "relative digestibility" of meat as compared to fish or chicken, which is merely a general question of feeding to an invalid and must not be confused with renal function. Naturally any sick man or woman should be given a tray of food which is tasteful and easy to digest, and as a rule the convalescent from any illness can more easily tackle a soft fish or the meat of a chicken than he can a well-done piece of roast beef. As a matter of practical cookery most individuals do not care for well-done red meat unless the native taste of the meat is either not "ruined" by the fire or is supplanted by high seasoning certainly contra-indicated in nephritis.

Ordinary stock soups are a very weak solution of beef extract flavored with salt and other seasonings, with a very high water content, relatively high content

in substances toxic to the kidney (extract, salt, seasonings) and an extremely small caloric value. Stock soups, therefore, outlaw themselves at once from the dietetic scheme of nephritis. A solution of toxic substances in a medium itself not without danger is by no means an ideal food. So-called "cream soups," however, call for an entirely different comment. Made with milk, cream, flour or any combination of these three, flavored with vegetables allowed in the nephritis dietary, cream soups form a palatable, digestible and high caloric introduction to a meal. Vegetables, except legumes high in nitrogen seem to have a particular field, possibly on account of their alkaline diuretic action. The legumes, being high in protein, must be considered under the class of proteins. All the carbohydrates and fat foods may be employed with safety as far as their toxicity to the kidney is concerned; but since the digestion of these patients may be impaired, attention to palatability and digestibility will caution against excessive use of any food.

The preparation and seasoning of food for the nephritic patient is just as important as the choice of foods to be used. It is very easy to deprive good foods of their dietetic value by improper preparation and by using condiments for seasoning which are harmful to the patient. Salt is the only condiment which should be used, and it should be used very sparingly. In some cases, when salt is poorly excreted, it is necessary to forbid its use entirely. In these cases the prepared "celery salt" or "onion salt" may be used when needed

for seasoning. Fried foods should *never* be used as food; the browned outer surfaces, saturated with grease, are harmful to both sick and well. Spices, strong acids, alcoholic beverages, tea and coffee should be avoided, as they are irritating to the kidneys.

Bearing in mind not only the qualitative limitations of food in nephritis, but also the fact that excessive quantities of any food at a given time are likely to make too severe a strain on the renal reserve, the nephritic menu should of necessity consider both the kind of food and the time it is served. It is well to use the five-meal day, making the 3 main meals less "heavy" than normal and adding between-meal lunches. In this way the burden of elimination is spread through the day. Menus based on the principles we have just outlined and used with some of our nephritic patients are now shown.

MENUS FOR 1 WEEK.

I.

- 8 A. M. Stewed pears, farina with cream, cocoa, toast and butter.
- 10 A. M. Milk 6 oz., with crackers.
- 12 M. Cream of corn soup, mashed potatoes, spinach with butter sauce, salad Bon Ton, chocolate cornstarch pudding, cocoa, bread and butter.
- 3 P. M. Fruit juice 6 oz. with crackers.
- 6 P. M. Rice with cream, creamed celery, blackberries, cocoa, bread and butter.

II.

- 8 *A. M.* Grapefruit, Ralston's breakfast food with cream, cocoa, toast and butter.
- 10 *A. M.* Buttermilk 6 oz.
- 12 *M.* Cream of tomato soup, mashed potatoes, stewed squash, lettuce salad with lemon juice and olive oil, caramel junket, cocoa, bread and butter.
- 3 *P. M.* Milk 6 oz. with crackers.
- 6 *P. M.* Cracked wheat with cream, baked potato, buttered beets, peaches, cocoa, bread and butter.

III.

- 8 *A. M.* Sliced oranges, rolled oats with cream, cocoa, toast and butter.
- 10 *A. M.* Orangeade.
- 12 *M.* Cream of spinach soup, mashed potatoes, Brussels sprouts, tomato salad, apple tapioca pudding, cocoa, bread, butter and jelly.
- 3 *P. M.* Milk 6 oz. with crackers.
- 6 *P. M.* Indian meal with cream, glazed sweet potatoes, fruit salad with eggless dressing, baked pears, cocoa, bread and butter.

IV.

- 8 *A. M.* Apple sauce, Pettijohn's and cream, cocoa, toast, butter.

- 10 *A. M.* Orangeade.
12 *M.* Cream of cauliflower soup, mashed potatoes, jelly, stewed tomatoes, watercress salad with lemon juice and olive oil, Norwegian prune pudding, cocoa, bread and butter.
3 *P. M.* Milk 6 oz.
6 *P. M.* Cracked wheat with cream, creamed potatoes, asparagus tips, red cherries, cocoa, bread, butter.

V.

- 8 *A. M.* Stewed prunes, cream of wheat with cream, cocoa, toast and butter.
10 *A. M.* Milk 6 oz.
12 *M.* Cream of asparagus soup, mashed potatoes, preserves, cauliflower with butter sauce, Romaine salad with lemon juice and olive oil, baked apple, cocoa, bread and butter.
3 *P. M.* Fruit juice 4-6 oz.
6 *P. M.* Hominy grits with cream, baked potato, creamed carrots, raspberries, cocoa, bread and butter.

VI.

- 8 *A. M.* Grapefruit, wheatena with cream, cocoa, toast, butter.
10 *A. M.* Junket 4-6 oz.

- 12 *M.* Cream of celery soup, mashed potatoes, jelly, escalloped corn, fruit salad, corn-starch pudding, cocoa, bread and butter.
- 3 *P. M.* Malted milk 6 oz.
- 6 *P. M.* Rice with cream, baked sweet potato, shredded lettuce with lemon juice and olive oil, sliced pineapple, cocoa, bread and butter.

VII.

- 8 *A. M.* White cherries, rolled oats with cream, cocoa, bread and butter.
- 10 *A. M.* Fruit juice 4-6 oz.
- 12 *M.* Cream of tomato soup, mashed potatoes, preserves, stewed turnips, celery hearts, chicory salad with lemon juice and olive oil, pineapple tapioca pudding, cocoa, bread and butter.
- 3 *P. M.* Milk 6 oz. with crackers.
- 6 *P. M.* Pettijohn's with cream, escalloped potatoes, spinach with butter sauce, loganberries, cocoa, bread and butter.

CHRONIC "INTERSTITIAL" NEPHRITIS

This is the name usually given to the condition generally coming on insidiously with a somewhat vague group of symptoms, associated usually with high blood pressure, cardiac symptoms and with a urine characterized by its low specific gravity, a mere trace of al-

bumen, a few casts and often increased excretion. Although as stated above "pure" types of nephritis are uncommon, edema is rarely found in this class of patients. On the contrary, careful laboratory studies of blood and urine show in the circulating blood an increase of urea and other nitrogenous end products, whereas salt and water metabolism is not essentially disturbed. In these patients, then, the diet need not consider salt or water, but must embrace the protein and energy factors. This is particularly the kidney disease in which functional studies have shown an inability of the kidneys to pass a concentrated urine; the kidney has no reserve energy and therefore can not meet extra demands. The amount of solids excreted as represented by the specific gravity is fairly constant day and night, and practically never reaches as high a percentage as is found with normal kidneys. This probably is the reason for the increased excretion of water.

This disease is almost invariably associated with high blood pressure, and later in its course with cardiac complications. The question as to whether high blood pressure may occur without such a disturbance of the kidney has not yet been definitely settled, so that high blood pressure as part of the disease chronic interstitial nephritis *may* be different from high blood pressure in other conditions. See page 143.

The symptoms of this type of chronic Bright's disease may be obscure and elusive, and it is not always the easiest disease to diagnose. The patient may

complain merely of slight headache, or of lassitude, or he may have stomach disturbances, or notice that he has to get up at night to urinate, or he may even not notice any symptoms until life insurance examination shows the trace of albumen and the casts, or perhaps the high blood pressure. He may not even know he is sick until some sudden strain results in an attack of apoplexy.

Obviously then the treatment in this condition will depend on the stage at which the patient applies for medical treatment. If the diagnosis is made early, before any serious damage is done, the diet, like the rest of the treatment, must be aimed at preventing complications. The course usually followed is to order the patient to lower the tension at which he works, to work less and sleep more; to eliminate from his day's routine things which are not necessary—in other words “to take things easy.” As far as diet is concerned, it seems to us far more important to restrict the amount taken than to over emphasize the harmfulness of any particular articles of food. Heavy meals which mean work for all the organs of the body are contra-indicated, and the patient is ordered to leave the table before his appetite is completely satisfied. If he is hungry between meals light luncheons of milk, or buttermilk and crackers or toast are allowed.

Although we do not know the *actual harmful* effects of various foods in this condition we do have clinical and experimental evidence of the toxic action of some foods, as has already been explained in previous dis-

cussion. The avoidance of uraemic symptoms can perhaps be helped by restriction of nitrogenous foods, and the discussion of such foods in the earlier portion of this chapter applies with equal force here. It is very doubtful, however, if complete restriction of animal protein is good practice when a disease is of long standing and the patient is likely to be engaged in normal pursuits which demand a rather liberal diet. Judgment must be exercised to balance the effect of articles of food, but excessive use of any food is always contra-indicated. Likewise restriction of certain articles of diet frequently found in a normal man's bill of fare, such as any kind of fried food, highly seasoned or rich food, pastries, should be insisted upon; these things are not necessary and may be harmful.

As a basis we give menus for such a patient for seven days, which will show what restrictions are necessary, and how great is the variety from which to pick a suitable diet.

Sunday.

BREAKFAST.

Grapefruit,	Cocoa, Toast and Butter.
Cream of Wheat and Cream,	

DINNER.

Cream of Asparagus Soup,	Lettuce Salad, Celery Hearts,
Small Broiled Chicken $\frac{1}{2}$,	Orange Ice,
Mashed Potatoes,	Cocoa, Bread, Butter, Jelly.
Cauliflower with Butter Sauce,	

SUPPER.

Rice with Cream,	Red Cherries,
Baked Sweet Potato,	Cocoa, Bread, Butter.
Creamed Carrots,	

Monday.

BREAKFAST.

Apple Sauce,	Cocoa, Zweibach, Butter.
Wheatena with Cream,	

DINNER.

Cream of Onion Soup,	Vegetable Salad,
Broiled Trout,	Pineapple Tapioca,
Mashed Potatoes,	Cocoa, Bread, Butter.
Tomatoes,	

SUPPER.

Hominy Grits with Cream,	Apricots,
Escalloped Potatoes,	Cocoa, Bread, Butter.
Stewed Corn,	

Tuesday.

BREAKFAST.

Prunes,	Cocoa, Toast, Butter.
Farina with Cream,	

DINNER.

Cream of Celery Soup,	Date Pudding,
Roast Beef, 2 oz. (60 gms.),	Cocoa, Bread, Butter and
Mashed Potatoes,	Peach Preserves.
Spinach with Butter Sauce,	
Watercress Salad with French	
Dressing,	

SUPPER.

Indian Meal with Cream,	Raspberries,
Baked Potatoes,	Cocoa, Bread, Butter.
Broiled Onions,	

Wednesday.

BREAKFAST.

White Cherries,	Cocoa, Toast, Butter.
Rolled Oats with Cream,	

DINNER.

Cream of Cauliflower Soup,	Fruit Salad with Eggless
Browned Potatoes,	Dressing,
Baked Salmon,	Caramel Junket,
Baked Squash,	Cocoa, Bread, Butter, Jelly.

SUPPER.

Wheatena with Cream,	Shredded Lettuce,
Creamed Potatoes,	Sliced Pineapple,
Salsify with Cream Sauce,	Bread, Butter, Cocoa.

Thursday.

BREAKFAST.

Grapefruit,	Cocoa, Toast, Butter.
Pettijohn's Breakfast Food with Cream,	

DINNER.

Cream of Tomato Soup,	Romaine Salad with French
Chicken Fricassee,	Dressing,
Mashed Potatoes,	Baked Apples,
Buttered Parsnips,	Cocoa, Bread, Butter.

SUPPER.

Rice with Cream,	Strawberries,
Baked Sweet Potatoes,	Cocoa, Bread, Butter.
Buttered Beets,	

Friday.

BREAKFAST.

Sliced Oranges,	Cocoa, Bread, Butter.
Ralston's Breakfast Food with Cream,	

DINNER.

Cream of Spinach Soup,	Tomato Salad, Celery Hearts,
Broiled Halibut,	Chocolate Cornstarch Pudding,
Mashed Potatoes,	Cocoa, Bread, Butter,
Brussels Sprouts with Butter Sauce,	Pear Preserves.

SUPPER.

Cracked Wheat with Cream,	Baked Pears,
Escalloped Corn,	Cocoa, Bread, Butter.
Chicory Salad with French Dressing,	

Saturday.

BREAKFAST.

Apricots,	Cocoa, Bread, Butter,
Vitos with Cream,	

DINNER.

Cream of Carrot Soup,	Fruit Salad, Radishes,
Lamb Chops, 2,	Sago Pudding,
Mashed Potatoes,	Cocoa, Bread, Butter, Jelly.
Sauerkraut,	

SUPPER.

Corn Flakes with Cream,	Blackberries,
Macaroni with Tomatoes,	Cocoa, Bread, Butter.
Creamed Celery,	

If the disease has progressed so far as to show signs of so-called uraemic poisoning, the diet, like the rest of the treatment, must be more rigid, and if frank uraemia is present the treatment will be different. Uraemic indications call for vigilant attempts to rest the kidney and to eliminate accumulated poisons through channels other than the kidney. Rest in bed, purgation, sweats all have this object in view, and the diet must try to adhere to the principles laid down at the beginning of this chapter. The one exception—water—is founded on the physiological-chemical conception of uremias. One type, rather rare, is associated with general edema and is probably due to edema of the brain. When uraemic symptoms occur with generalized edema we know of no better dietary regime than the one already planned for the treatment of acute nephritis. The uraemia may, however, be due to one of two other causes: (a) retention of urinary products, (b) a toxin produced by the renal disease. In either one of these types—the commonest met with in practice—restriction

of water is not only not indicated, but in the use of water we have one of the mildest and most efficient diuretics known. If there be an accumulation in the body of some substances poisonous to the body, and if such substance can be "washed out" with water, we should certainly attempt to do so. In case of an accompanying cardiac complication the use of water must be restricted merely because of the mechanical inability of the heart to pump it through the body.

In resume then, when ureamic symptoms appear, the diet is changed accordingly. If these symptoms are mild, an increase in headache, greater lassitude, without any more marked manifestations, perhaps a complete removal of nitrogenous foods, with the customary purgation and sweating, will accomplish the purposes. It is really not difficult for a patient to get a fairly liberal diet on this basis. The lists given on page 124, without meat, may be consulted. Water, as stated, should be used freely.

If, on the other hand, more marked symptoms are noted, it is best to employ a strict milk and water diet, at least temporarily, and then gradually to add cereals, cream, sugar, bread, vegetables, as has been described under acute nephritis. In these cases the diet is merely an accessory in the general scheme to procure functional renal rest.

LIGHT SOFT NEPHRITIC DIET.

I.

Breakfast: Fruit juice, strained cereal with cream, cocoa, toast and butter.

Dinner: Cream soup, tapioca pudding, cocoa, toast and butter.

Supper: Strained cereal with cream, fruit juice or strained fruit, cocoa, toast and butter.

Lunches may be given of milk, buttermilk, malted milk, fruit juice.

II.

Breakfast: Apple sauce, strained farina with cream, cocoa, toast and butter.

Dinner: Cream soup, cornstarch pudding, cocoa, toast, butter.

Supper: Strained rice with cream, fruit juice, cocoa, toast and butter.

III.

Breakfast: Fruit juice, oatmeal gruel with cream, cocoa, toast and butter.

Dinner: Cream soup, junket, cocoa, toast and butter.

Supper: Strained farina with cream, strained peaches, cocoa, toast and butter.

SOFT NEPHRITIC DIET.

I.

Breakfast: Stewed fruit, cereal with cream, cocoa, toast, butter.

Dinner: Cream soup, mashed potatoes, spinach (or other stewed vegetable), junket, cocoa, toast and butter.

Supper: Cereal with cream, baked potatoes, creamed celery (or other stewed vegetable), peaches, cocoa, toast and butter.

II.

Breakfast: Stewed prunes, oatmeal with cream, cocoa, toast, butter.

Dinner: Cream soup, mashed potatoes, creamed carrots, tapioca pudding, jelly, cocoa, toast and butter.

Supper: Rice with cream, creamed potatoes, baked apple, cocoa, toast and butter.

III.

Breakfast: Stewed pears, farina with cream, cocoa, toast, butter.

Dinner: Cream soup, mashed potatoes, stewed corn, chocolate blanc mange, cocoa, toast and butter.

Supper: Indian meal with cream, baked potato, stewed cherries, cocoa, toast and butter.

FULL NEPHRITIC DIET.

(Animal Food Stuffs Restricted.)

I.

Breakfast: Grapefruit, cereal with cream, cocoa, toast, butter.

Dinner: Cream soup, mashed potatoes, cauliflower with butter sauce, lettuce salad with French dressing, cornstarch pudding, cocoa, bread, butter, jelly.

Supper: Cereal with cream, creamed potatoes, broiled onions, fruit salad, baked apple, cocoa, bread and butter.

II.

Breakfast: Prunes, Ralston's with cream, cocoa, toast, butter.

Dinner: Cream soup, mashed potatoes, stewed tomatoes, chicory salad with lemon and olive oil, raw fruit, cocoa, bread, butter.

Supper: Rice with cream, baked sweet potato, buttered beets, shredded lettuce, strawberries, cocoa, bread and butter.

III.

Breakfast: Sliced oranges, oatmeal with cream, cocoa, toast or rolls, butter.

Dinner: Cream soup, mashed potatoes, celery, spinach with butter sauce, fruit salad, jelly, chocolate junket, cocoa, bread and butter.

Supper: Hominy with cream, baked potatoes, glazed carrots, romaine salad with French dressing, sliced pineapple, cocoa, bread and butter.

FULL NEPHRITIC DIET.

(Meat, fish or fowl once daily.)

Breakfast: Plums, cereal with cream cocoa, toast and butter.

Dinner: Cream soup, broiled chicken with cranberry jelly, mashed potatoes, Brussels sprouts, tomato salad, fig pudding, cocoa, bread and butter.

Supper: Cereal with cream, baked sweet potato, creamed carrots, beet and celery salad, white cherries, cocoa, bread and butter.

DIET LOW IN NITROGEN.

Cream soups, except cream of peas or beans.

All kinds of fresh and stewed fruits.

Vegetables—Potatoes, squash, carrots, beets, cabbage, cauliflower, sauerkraut, Brussels sprouts, lettuce, spinach, celery, romaine, watercress, artichokes, cucumbers, tomatoes, mushrooms, asparagus, radishes, onions.

Fats of all kinds—Butter, cream, olive oil.

Sugar in abundance.

Bread—White bread, toast, zweibach, crackers.

Cereals of all kinds in moderate amounts.

Beverages—Water, milk, cocoa, buttermilk.

Meats—If any allowed, fish or chicken, once daily.

SALT CONTENT OF FOODS¹ According to Leva (25).

	% Sodium Chlorid in Raw Material.		% Sodium Chlorid in Raw Material.
MEATS		MEAT EXTRACTS	
Mutton	0.17	Liebig's	2.60
Veal	0.13	Kemmerich	1.40
Calf's brain	0.20	Various bouillon cap-	
Calf's kidney	0.32	sules, extracts, etc..	9.40-22.0
Calf's liver	0.14		
Beef (lean)	0.11	PREPARED FOODS	
Pork (lean)	0.10		
FISH		Plasmon	0.21
Trout	0.12	Roborat	0.0051
Hallbut	0.30	Sanatogen	0.42
Herring	0.27	Somatose	0.66
Cod	0.16	Bovril's preparations..	0.26-14.1
Carp	0.086	Valentine's Meat Juice	0.08-1.30
Salmon	0.061	Egg (white and yolk)..	0.21
Mackerel	0.28	Egg (white alone).....	0.31
Haddock	0.39	Egg (yolk alone).....	0.039
POULTRY		Caviar	3.00
Duck	0.14	Milk (whole)	0.16
Goose	0.20	Cream	0.13
Chicken	0.14	Buttermilk	0.16
Pigeon	0.15	Whey	0.11-0.15
Turkey	0.17	Condensed milk	0.40
Venison	0.11	Butter (unsalted)	0.02-0.21
Oyster (washed)	0.52	Butter (salted)	1.00-3.00
Oyster (with sea water)	1.14	Peanut butter*	4.10
SMOKED AND SALTED FOODS		Oleomargarine	2.15
Ham (raw)	4.15-5.86	Palmin	0.0016
Ham (boiled)	1.85-5.35	Fructin	0.10
Salmon (smoked)	7.50	CHEESE	
Bacon (smoked, Ger-		Parmesan	1.93
man)	1.01	Swiss	5.00
Bacon (smoked, Ameri-		American, pale*	0.82
can)	11.61	Pineapple cheese	2.13
Corned beef, German..	2.04	Edam	3.30
Corned beef, American	11.52	English cream cheese..	0.70-1.15
Cod (salt)*	23.00	INFANT'S FOODS	
Cod (salt, boneless)*..	19.00	Nestle's Food	0.29
Herring (smoked)*	11.70	Rademan's	0.03
Mackerel (salt, dressed)	10.40	Robinson's Patent	
Salmon (smoked, salted)	10.87	Groats	Trace
Sardines (French, in oil)	1.34	BREAD, ETC.	
Cod-liver oil	0.17	Graham bread	0.61
Gelatin (dry)	0.75	Pumpernickel	0.46
Beef marrow	0.11	White bread	0.18-0.70
Sausages, Frankfurter.	2.20	Zweiback	0.38
Sausages, various kinds	2.90-3.10	Macaroni	0.067
Anchovy paste (Cross & Blackwell)	40.1		

This table is taken from Coleman in "Forchheimer's Therapeutics of Internal Diseases, Vol. I, 642.

Analyses marked thus * from Atwater and Bryant (2).

SALT CONTENT OF FOODS—Continued.

	% Sodium Chlorid in Raw Material.		% Sodium Chlorid in Raw Material.
CEREALS, ETC.		FRUITS—(Con.)	
Barley	0.037	Almonds, dry	0.010
Oats	0.046	Walnuts, dry	0.019
Rye	0.014	Cane sugar	0.110
Wheat	0.013	Lump sugar	0.049
Rice	0.039	Chocolate (Lindt)	0.073
Corn (maize)	0.019		
Wheat flour	0.002—0.008	SPICES	
Oatmeal (American)...	0.29	Capers (preserved in salt)	2.10
Oatmeal (German)....	0.28	Capers (preserved in vinegar)	0.20
Quaker oats	0.082	Pepper, black	0.51
Sago	0.19	Pepper, white	0.019
		Mustard	2.66
VEGETABLES		Vanilla	0.055
Potatoes	0.016—0.078	Cinnamon	0.061
Beets	0.058	Cocoa beans	0.05—0.095
Beans	0.09	Coffee (roasted)	0.045
Peas	0.058	Tea	0.15
Lentils	0.13—0.19		
Lentils (dried)	0.155	DRINKS	
Artichokes	0.036	Ground water	0.0012—0.0060
Cauliflower	0.05—0.15	Spring water	0.00055—0.0046
Cucumber (fresh)	0.06—0.08	Ale	0.0017
Horse-radish	0.02—0.06	Beer (German)	0.016
Radish	0.075	Beer (English)	0.10
Celery, stalks	0.25—0.49	Champagne (Moët & Chandon)	0.0045
Celery, roots	0.089	Apollinaris	0.043
Asparagus	0.04—0.06	Fachinger	0.039
Spinach	0.084—0.21	Glessshübel (Mattoni)...	0.0021
Tomatoes	0.084	Vichy	0.053
Cabbage	0.11—0.44		
Onions	0.016—0.09		
		FOODS PREPARED FOR TABLE	
CANNED VEGETABLES		Bouillon	0.5—1.0
Green corn*	0.40	Thick soups	0.54
Green peas*	0.70	Roast beef	0.98
Tomatoes*	0.10	Roast pork	1.54
Mushrooms	0.04—0.06	Chops	0.97
		Roast chicken	0.39
FRUITS		Sauces	0.7—1.5
Pineapple	0.071	Scrambled eggs (salted)	1.10
Orange	0.0057—0.0550	Spinach	0.21
Apricot	0.0047	Carrots	0.46
Lemon	0.0045	Cauliflower	0.49
Strawberry	0.0100—0.020	Green salad	0.41
Chestnuts	0.0045—0.010	Apple sauce	0.031
Cherry	0.013	Stewed pears	0.019
Cocoonut juice	0.035	Taploca pudding (unsalted)	0.026
Olives	0.008—0.210	Macaroni (à la Napolitaine)	1.04
Plum	0.0046	Rice with apples	0.18
Gooseberry	0.021		
Watermelon juice	0.011		
Grape	0.024		

Analyses marked thus * from Atwater and Bryant (2).

RECIPES FOR NEPHRITIC DIET.

(Omit salt when necessary.)

CREAM SOUPS.

(1) *White Sauce for Cream Soup.*

1 tablespoon melted butter, 1 tablespoon flour, $\frac{1}{8}$ teaspoon salt, 1 cup milk.

Add flour to melted butter. Beat into the hot milk and cook in double boiler 30 minutes. Season to taste.

(2) *White Sauce for Puree of Thin Vegetables.*

1 tablespoon melted butter, $\frac{1}{8}$ tp. salt, 2 tablespoons flour, 1 cup milk.

For preparation, follow directions given above.

(3) *White Sauce for Puree of Heavy Vegetables.*

1 tablespoon melted butter, 3 tablespoons flour, $\frac{1}{8}$ tp. salt, 1 cup milk.

Cream of Asparagus Soup.

$\frac{1}{2}$ cup White Sauce No. 1, $\frac{1}{8}$ cup or 2 tablespoons strained asparagus.

If fresh asparagus is used, wash, and cook it in boiling salted water for thirty minutes. Strain asparagus through a fine strainer and add to the white sauce. Reheat and serve.

Cream of Corn Soup.

$\frac{1}{2}$ cup No. 1 White Sauce, $\frac{1}{4}$ cup strained corn.

Either green corn or canned corn may be used to prepare this soup. If green corn is used, chop corn, add water to cover well and simmer for

twenty to thirty minutes. When tender rub through a strainer and blend with white sauce.

Cream of Spinach Soup.

$\frac{1}{3}$ cup White Sauce No. 1, $\frac{1}{4}$ cup water drained from cooked spinach, 2 tablespoons strained spinach.

Prepare white sauce. Cook spinach, drain and strain. Blend ingredients, reheat and serve.

Cream of Potato Soup.

$\frac{1}{2}$ cup White Sauce No. 1, $\frac{1}{2}$ average sized potato or 2 tablespoons mashed potato.

Cook potato until tender. Drain and rub through strainer. Blend with white sauce and season to taste.

Cream of Tomato Soup.

$\frac{1}{2}$ cup White Sauce No. 1, $\frac{1}{8}$ cup or two tablespoons of strained tomatoes, $\frac{1}{8}$ tp. baking soda.

Prepare white sauce. Heat strained tomatoes, when boiling add soda and blend with the white sauce.

Cream of Celery Soup.

4 stalks celery, $\frac{1}{2}$ cup water, $\frac{1}{2}$ cup White Sauce No. 1.

Clean celery and cut it into small pieces. Cook in the stated amount of water until celery is very tender. If water boils away renew to original amount. Mash celery and add it with water in which it has been cooked, to the white sauce.

VEGETABLES.

The vegetables which the nephritic should use are green vegetables, as lettuce and spinach, and the roots and tubers, as potatoes and beets. Legumes, peas and beans should be avoided. Green vegetables and tubers have a large percentage of water. The chief food principal found in these is starch. They are low in protein and fat. Mineral salts are found in these in varying amounts and this makes these vegetables very valuable foods. A good rule for cooking vegetables is, use enough water to cover strong vegetables, and small amount for sweet vegetables. Onions and cabbage would thus require a larger quantity of water for cooking than spinach or squash or beets.

Mashed Potatoes.

Pare potatoes and put in cold water to keep from discoloring. Put into pan or kettle and cover with boiling water. When nearly cooked, add pinch of salt or $\frac{1}{2}$ tp. to every 3 potatoes. When tender, drain and mash. Add 1 teaspoon butter and 1 tsp. of hot milk or cream to every cup (8 oz.) of mashed potato. Beat until light and creamy.

Baked Potatoes.

Scrub thoroughly one Irish or sweet potato. Cut off a small piece at each end to allow steam to escape. Bake in hot oven 45 to 60 minutes. When tender, either break potato open or prick with a

fork to allow steam to escape. Serve as soon as possible after baking.

Creamed Potatoes.

Prepare as for boiling or mashing. When tender drain and add White Sauce No. 1 and cook until potatoes nearly absorb this.

Escalloped Potatoes.

Wash and pare potatoes. Into a baking dish put a layer of sliced potatoes. Sprinkle over this a little salt and flour and add a little butter. Proceed in this manner until required amount is obtained. Then cover with sweet milk and bake in a hot oven 50 to 60 minutes.

Asparagus.

$\frac{1}{4}$ bunch asparagus makes an individual serving. Cut off lower end of stalk, wash and cook in boiling salted water until tender. Drain and serve with drawn butter sauce or with White Sauce No. 2, either plain or on toast.

Spinach.

Pick over spinach carefully, discarding heavy stems. Boil in salted water about 20 minutes. Drain and serve with butter sauce, or chop and serve with cream sauce.

Stewed Celery.

Scrape and wash celery. Cut into small pieces and cook until tender in boiling salted water. Serve with White Sauce No. 2. Celery is cooked in small amount of water and is not drained.

Carrots.

Wash and scrape carrots. Cut into small slices and cook in boiling salted water until tender. Drain and serve with butter sauce or with White Sauce No. 2.

Cauliflower.

Remove outer leaves of cauliflower. Let stand head downward in cold salted water. Cook, head up in boiling salted water 20-30 minutes. Do not over cook, as cauliflower discolors readily. Drain and serve with butter sauce or White Sauce No. 2.

Brussels Sprouts.

Clean and cook in boiling salted water 20-30 minutes. Drain and serve with butter sauce.

Stewed Onions.

Peel onions under water. Cook in boiling salted water in which a pinch of soda has been added. Drain and cover with boiling water and cook until very tender. Drain off water and add a little milk. Onions may be broiled by cooking by same method. After draining, cut in slices $\frac{1}{4}$ to $\frac{1}{2}$ inch thick. Put into baking pan and put small piece of butter on each slice and broil under direct fire until nicely browned.

Stewed Squash.

Peel squash and cut into small pieces. Cook in boiling salted water until tender. Mash and add butter and salt to season.

Baked Squash (Hubbard).

Cut squash in moderate sized pieces. Wash and bake in hot oven. When nearly done, pour melted butter and a little salt over the squash.

Buttered Beets.

Wash beets carefully. Do not bruise or juice will escape when they are cooked and they will lose their color. Cook 2-3 hours in boiling water. When tender drain and add salt and butter sauce.

TABLE FOR COOKING VEGETABLES.

Asparagus	20-30 min.	Squash	30-60 min.
Beet Greens	30-60 min.	Tomatoes	30-60 min.
Brussels Sprouts...	15-20 min.	Celery	30-40 min.
Cauliflower	20-30 min.	Potatoes, white,	
New Corn	5-30 min.	boiled	20-30 min.
Spinach	15-20 min.	Potatoes, white,	
Turnips	30-60 min.	baked	45-60 min.
Artichokes	1 hour	Potatoes, sweet,	
New Beets	1- 2 hours	boiled	15-25 min.
Cabbage	1- 3 hours	Potatoes, sweet,	
Carrots	60-90 min.	baked	30-40 min.
Onions	1- 2 hours		

DESSERTS.

Grape Juice Ice Cream.

$\frac{1}{4}$ cup of cream (20 per cent.), $\frac{1}{4}$ cup grape juice, 2 tablespoons sugar.

Scald cream and add sugar. Cool and add grape juice and freeze.

Strawberry Ice Cream.

2 tablespoons cream, 2 tablespoons milk, 2 tablespoons sugar, 2 tablespoons crushed strawberries.

Mash berries with sugar. Add milk and cream and freeze.

Lemon Sherbet.

$\frac{1}{4}$ cup milk, 2 tablespoons sugar, 2 tablespoons lemon juice,

Blend all ingredients and freeze.

Lemon Ice.

$\frac{1}{2}$ cup water, juice 1 lemon, 4 tablespoons sugar.

Boil water and sugar to a thin syrup. Add fruit juice; cool and freeze.

Orange Ice.

$\frac{1}{4}$ cup water, juice 1 orange, 1 tablespoon lemon juice, 2 tablespoons sugar.

Make a thin syrup with the sugar and water. Add fruit juices; cool and freeze.

Pineapple Ice.

1-3 cup pineapple juice, 1 tablespoon lemon juice,

$\frac{1}{2}$ cup water, 2 tablespoons sugar.

Mix all ingredients and freeze.

Plain junket.

1 cup milk, 2 tablespoons sugar, $\frac{1}{2}$ junket tablet, 1 teaspoon cold water.

Heat milk until lukewarm. Add sugar and flavoring, then junket which has been dissolved in cold water. Stand in a warm place until firm, then chill in ice-box.

Caramel Junket.

Use same ingredients as those given in preceding recipe. Caramelize sugar and gradually add warm milk to it. Then proceed as for a plain junket.

Cornstarch Pudding.

1 cup milk, $1\frac{1}{2}$ tablespoons cornstarch, $1\frac{1}{2}$ tablespoons sugar, speck salt, 3-4 drops vanilla.

Scald milk in a double boiler. Mix dry ingredients and add them slowly to the scalded milk, stirring constantly until the mixture thickens. Cook for 20-30 minutes, stirring occasionally. Add flavoring and turn into moulds and let chill in ice-box. This pudding may be served with jelly or jam. It may also be varied by adding melted chocolate or cocoa.

Plain Tapioca.

1 cup scalded milk, 2 tablespoons minute tapioca, 2 tablespoons sugar, 3-4 drops vanilla.

Scald milk in double boiler, and slowly add tapioca and sugar. Cook 15-20 minutes. Add vanilla and turn in moulds and let stand until cold. This may be served plain or with sugar and cream. This recipe may be varied by adding $\frac{1}{4}$ cup chopped dates or two slices of chopped pineapple, or one or two tart apples.

Baked Apple Pudding.

1 large apple, 2 tablespoons melted butter, $\frac{1}{4}$ cup stale bread crumbs, $1\frac{1}{2}$ tablespoons sugar, 2 tablespoons water.

Mix bread crumbs and butter. Pare, core and slice apples. Cover bottom of buttered dish with crumbs and spread a layer of the thinly sliced apples over this. Alternate with crumbs and apple.

Add water and sugar mixed together. Bake for 20-30 minutes in a moderate oven. Serve with hard sauce or with sugar and cream.

Hard Sauce.

$\frac{1}{2}$ tablespoon butter, $1\frac{1}{2}$ tablespoons powdered sugar, few drops of vanilla.

Cream butter, add sugar slowly while stirring constantly, then add vanilla.

Cocoa.

$1\frac{1}{2}$ teaspoons cocoa, $1\frac{1}{2}$ teaspoons sugar, $\frac{1}{4}$ cup water, $\frac{3}{4}$ cup milk.

Boil cocoa, sugar and water for 1-3 minutes. Scald milk in double boiler and add cocoa syrup to it. Beat and serve.

Orange-Ade.

Juice of 1 orange, 1 tablespoon lemon juice, 1 tablespoon sugar.

Mix ingredients and add one or two tablespoons of crushed ice, if desired.

Lemon Whey.

1 cup hot milk, 2 teaspoons sugar, 2 tablespoons lemon juice.

Heat milk in double boiler. Add lemon juice. When whey separates strain and add sugar. Serve cold.

HIGH BLOOD PRESSURE

"Blood pressure" is *now* one of the bywords of the profession. Just as when appendicitis sprang into the

limelight of easy diagnosis, almost everyone seemed to suffer from appendicitis; so to-day, thanks primarily to the zeal of life insurance examiners, "high blood pressure" is one of the commonest complaints of office practice. This concentration of attention on one symptom has been a tremendous factor for good—not unmixed, however, with evil. Many patients have the impression that if they have high blood pressure they have a disease which will probably cause their death in short order, and it is certainly the minority who ever realize that hypertension is rarely more than a symptom indicating some underlying pathological disturbance. "Hardening of the arteries"—once a stylish name, occupies an insignificant niche now, not only in lay minds, but, too frequently, in the minds of physicians when high blood pressure is found. A low-grade chronic nephritis is most often overlooked, merely because the single urine specimen examined does not show albumen and casts. Hypertension, as the result of a chronic infection in tonsils, in teeth, in prostate, has received much attention; but too often an unjustified tonsil enucleation or a wholesale extraction of teeth is executed without any attempt at proving the relation of cause and effect. We do not wish to belittle in any way the practice of removing a possible source of infection and toxic absorption, but we feel that the interesting study of hypertension as a symptom receives a serious shock from a practice too often executed without study of the individual patient. And it is the purpose of this introduction merely to em-

phasize that high blood pressure does not mean the same thing in every patient, and that properly to treat it requires careful analysis and a proper classification before treatment is begun.

The dietary regime one should advise a patient to follow would naturally depend almost entirely on the fundamental cause of the trouble. Since by far the greatest number of patients with high pressure have at least an accompanying if not a causative chronic nephritis of the interstitial type, the diet used in chronic nephritis will be found most valuable. Just as this diet is modified to suit the variations of the disease with the individual nephritic patient, so it is modified to perhaps an even greater extent with the patient with high blood pressure, and few if any other symptoms. Diet has seemed to us of perhaps less value than the avoidance of strain, emotional as well as physical. Not infrequently the worry associated with the knowledge of the possession of high blood pressure acts as a remarkable stimulant to maintenance or increase of the pressure, and unless means to control such emotion are undertaken we believe dietary restrictions will be useless, if not actually harmful, because of the tendency to center attention and increase the worry. It seems to us that it would be a better plan in many instances to allow a normal not excessive diet, rather than to adopt a strict regime when the latter would tend to upset the patient's equilibrium. (For details of diet see page 124.)

If the blood pressure is associated with arterial or cardiac disease, then of course treatment must aim at helping the heart. This will be discussed in the following chapter.

KIDNEY STONE

Broadly speaking the chemical composition of the kidney stone will determine the nature of the diet to be employed. There are three general types of stone: those made up of (1) uric acid, (2) calcium oxalate, (3) phosphates.

Much has been written about the relation of diet to these various stones, but in not all cases do the chemical indications point to successful dietary treatment. However, with some patients it may be possible to prevent the formation of new calculi by proper control of diet and living, and certainly the attempt should be made in all cases.

Those patients whose calculi consist mainly of uric acid should be treated as we treat patients with gout. A well regulated life, a well balanced low caloric diet, plenty of water, and the prohibition of articles of food rich in uric acid precursors is advised (see page 100). One point in treatment differing from the treatment in gout may be mentioned. The uric acid calculus may be precipitated by physical-chemical changes in the urine rather than by a fundamental metabolic disturbance, the chemical change being shown by increased urinary acidity. The use of alkalies or of alkali drinking water is therefore advised in cases of uric acid stone.

So little is known of the cause of oxalate stones that it would not be of great avail to lay down explicit dietary rules. The removal from the diet of articles of food known to be rich in oxalates is advised from empiric reasons. Such foods are pepper, sorrel, rhubarb, spinach, haricots, beet roots, dried figs, tea and cocoa. Food especially rich in calcium as milk, eggs and fresh vegetables (peas, beans, asparagus, radishes) should also be avoided. Meats, cereals, bread, rice, potatoes, apples, in moderation, may all be used to advantage by the person who must avoid oxalates and calcium. Also since in many cases the oxalate stone is associated with uric acid, the advice just given for uric acid stones may well be followed.

Phosphatic stones usually are found only when the urine presents two distinct abnormalities (1) alkalinity, (2) evidence of infection of the genito-urinary tract. The condition known as "phosphaturia", in which a person passes an alkaline urine heavily loaded with a precipitation of phosphates, is often associated with a disturbance of the nervous system, and is probably *not* due to diet. For this reason the treatment of patients who have had phosphatic stones is directed toward improving the nervous condition producing the phosphaturia, keeping the kidneys well washed out, and the urine acid or amphoteric—its normal condition. Whether diet can influence this is doubtful; it has been suggested (Neuberg) that the limitation of foods high in lime such as milk, eggs, fruit and substitution of lime-poor foods such as meat, potato,

cereals, has shown a good effect in some cases. The most important element in the diet and the only *proved* helpful agent is water, which should be taken freely. As far as "trying-out" different theoretical diet cures is concerned it seems to us that a good game of golf or tennis or a few days' outing is more potent in eliminating "phosphaturia" than is food. If the phosphaturia disappears, the treatment of an accompanying infection will do the rest..

CHAPTER VI.

DISEASES OF THE HEART

There can be no special diet for all patients suffering with heart disease, any more than there can be a general method of treatment of such patients. A person with a disease of the heart without symptoms is quite different from the same patient after the disease has progressed to the stage where the heart muscle no longer performs its normal function—the stage of decompensation. A person with a completely compensated heart can lead a normal life with the possible exception of the restriction or prohibition of alcohol and tobacco. There must be no excesses in food as in other matters, but on the whole, as has already been stated in the discussion of hypertension, the less attention such a patient pays to his diet the better he will be.

When, however, decompensation sets in there are some principles of diet to be observed: (1) spare the work of the heart; (2) avoid pressure on the heart by the stomach and intestines. Fluids usually should be restricted, as the elimination of large amounts of fluids puts an extra burden on the heart. Fifteen hundred (1500) cc. best taken *between meals* forms the maximum limit for most cases. The severely ill patients with edema generally will react to the same treatment already described for the “wet” cases of nephritis; in such cases the Karell cure (page 109) often causes a rapid disappearance of the edema. A

salt-poor diet has the same indications in heart disease as it has in kidney disease—edema; and it can be used when we do not wish as low a diet as the Karell cure. Alcohol is advised in very small quantities, if at all.

The actual food for moderately decompensated patients should be easily digestible, and of a kind not likely to produce gas in the stomach. Small meals at frequent intervals will relieve the burden of the heart and kidneys, and will not be so likely to produce pressure on the heart by distending the stomach. The completely decompensated patient, bed-ridden and dyspnoeic requires a very light diet. He will be incapable of the muscle work necessary to chew foods so that his diet must contain substances requiring only the effort of swallowing. Both because the stomach should not be filled and because of the danger of overexertion the food should be given at frequent intervals and in small amounts.

MODIFIED KARELL TREATMENT. SALT-FREE.

Milk 200 cc. at 8 A. M., 12 M., 4 and 8 P. M. for 5-7 days.

Eighth Day. Milk same as above. 10 A. M., 1 soft egg. 6 P. M., 2 slices dry toast.

Ninth Day. Milk as above. 10 A. M., 1 soft egg and 2 slices toast.

Tenth to Twelfth Days. Milk as above. 12 M., chopped meat, rice boiled in milk, easily digested vegetables. 6 P. M., 1 soft-boiled egg.

As convalescence is established the diet can gradually be increased until a full tray is reached. All meats and vegetables should be chopped or scraped at first, and the heavier foods should be given only when the heart is practically compensated. For the reasons already given, no heart patient who has ever shown the signs of decompensation should eat large meals—the 5 meal day should be his custom through life. Foods likely to ferment and produce gas in the stomach or intestines should be avoided. Mineral waters should be “still” rather than charged. It is always well for patients with heart disease—and this is especially true of those suffering from angina pectoris—to rest for one-half to one hour after meals. Often the strain of exercise, added to that of digestion and pressure from the full stomach, is just sufficient to bring on an attack of decompensation or of angina. Many patients with angina die suddenly just after eating—the symptoms often being gastric, although the cause of death is the heart.

We have already spoken of the diet in the arteriosclerotic or the old myocarditic patient. (See page 143.) On the whole it is difficult to persuade these patients to submit to any dietary changes, and as a matter of fact many get along surprisingly well without interference with their ordinary habits. We can repeat what we have already said in regard to dieting patients—especially older persons—with high blood pressure: if dietary restriction causes the patient to fret or worry about his condition more harm than good

can arise from insistence. Obviously unwise habits should be corrected, but on the whole a suitable diet will be the one which tempers the demands of science to meet the life-long habits of the individual. Some diets in which a moderate amount of fluid is allowed are given below. They may be either saltless or with salt according to the directions of the attending physician. These diets are especially for patients without renal complications. Meat may be omitted from these menus when considered advisable.

I.

Breakfast: Stewed prunes, farina with cream, cocoa, toast and butter.

Dinner: Cream of tomato soup, small piece of broiled fish, mashed potatoes, asparagus tips, jelly, chocolate cornstarch pudding, milk, toast or bread, butter.

Supper: Rice with cream, baked apple, cocoa, toast and butter.

Lunches: 10 A. M. 4-6 oz. milk.

3 P. M. Fruit juice, 4-6 oz. or egg nog.

8 P. M. Broth, 4-6 oz. with crackers.

II.

Breakfast: Apple sauce, 1 soft-boiled egg, oatmeal and cream, cocoa, toast and butter.

Dinner: Cream of pea soup, broiled chicken or squab, mashed potatoes, spinach, ice cream, weak tea, bread or toast and butter.

Supper: 1 soft-cooked egg, baked potato, stewed peaches, cocoa or milk, toast and butter.

III.

Breakfast: Sliced oranges, crisp bacon, wheatena with cream, cocoa, toast and butter.

Dinner: Cream of corn soup, broiled lamb chop, mashed potatoes, French peas, tapioca pudding, milk, toast or bread, butter.

Supper: Oyster stew, baked or stewed pears, cocoa, toast and butter.

Lunches: 10 A. M. Milk, 4-6 oz.

3 P. M. Malted milk, egg nog or fruit
gelatin.

8 P. M. Broth, 4-6 oz. with crackers.

CHAPTER VII.

DISEASES OF THE STOMACH

Perhaps the commonest disease of the stomach is acute indigestion. The disease which the newspapers often describe as acute indigestion, and which produces death, is usually angina pectoris or some other heart disease. Acute indigestion is the ordinary upset stomach occurring from food or drink which disagrees in some way; for example, the green apple stomach ache; the bad after effect of too cold or too hot drinks; the result of improperly cooked foods—these are real acute indigestion. The symptoms generally noticed are referable to both stomach and intestines. The dietary rules are logical and simple: give the gastrointestinal canal a rest by taking away all foods except perhaps water and weak tea for 24 hours. Then the diet is gradually increased, at first using easily digested foods which have little “residue” until a normal diet is reached. The following diet will give a scheme for treating cases of acute stomach disturbances, which, of course, must be individualized. Barley water, strained gruels, albumen water, broths and soups, soft eggs and soft toast may follow the weak tea and water diet. Milk diluted with water or seltzer may be given next, if milk is well borne. Gelatins, custards and other soft milk puddings are useful here. Mashed potatoes and strained vegetables are added next, and finally easily digested meats as fish or chicken. If no further symp-

toms are experienced, the patient may then resume his former diet.

ULCER OF THE STOMACH

By ulcer of the stomach we mean an erosion of the lining which may be more or less deep, and more or less chronic. In its pathological picture it is so analogous to an ulcer anywhere on the surface of the body that in principle the same treatment is applied—as far as possible remove the cause of the ulcer and prevent further irritation, so as to allow it to heal. In the stomach this is not as easily accomplished as on the surface of the body, as it is not always easy to remove the hyperacid stomach juice which almost always accompanies an ulcer and which probably has a causative relation to it. We can, however, attempt to neutralize this acid by the use of alkalies and proper food. Proper food must not only help neutralize the acid, but must be non-irritating to the ulcer and of such a nature that the work of digestion by the stomach will be reduced to a minimum. In fundamental principles, at least, this method does not differ from the methods of treating a superficial ulcer.

There are many surgical aspects to the treatment of gastric ulcer, depending on the nature of the change in the stomach. A perforated ulcer or one which in its development has caused contraction and obstruction of the stomach can hardly be benefited by a dietetic cure, and before subjecting such a patient to a rigid

medical treatment judgment must be used in deciding whether the patient requires operation.

Each one of the many diet cures for ulcer of the stomach has for its object the attainment of gastric rest and the neutralization of the hyperacid gastric juice. Every form of dietetic treatment of ulcer has two phases—the acute treatment usually carried out with the patient on his back, and a continuation of this treatment by the patient as he gradually goes about his affairs. The latter part of the treatment is undoubtedly the most difficult, because of the many temptations which meet a man's appetite when he is not under direct medical supervision. It is not difficult for a patient to follow orders while he is on his back and his tray is brought to him, but let the same patient begin to feel better, and he will find the path of least resistance to be to eat what tastes good. Therefore, the necessity for much detailed instruction to this patient arises, and this instruction should deal not only with his "must not eat" but with his "may eat" as well. Too much emphasis cannot be laid on the fact that seldom if ever does the ordinary "ulcer cure" actually cure, but that a long standing supervision of diet is necessary.

There are many diet cures in use, but the principles of all are the same: (1) bland food; (2) small quantities; (3) frequent feedings; (4) gradual increases. To accomplish our object we must adapt our method to the demands of the individual case. In many cases where the ulcer is superficial and producing slight

symptoms, Lenhartz' method may well be used. The chart given explains itself, and it is only necessary to add that in the beginning the milk, eggs and sugar are mixed together, kept ice cold, and fed to the patient in teaspoonful doses at frequent intervals. As more food is added the amount at each feeding is increased and the interval between feedings lengthened.

LENHARTZ' DIET.

Day	Eggs	Milk cc.	Sugar gms.	Meat gms.	Rice gms.	Zweibach gms.	Ham gms.	Butter. gms.
1	1	200						
2	2	200						
3	3	300						
4	4	400	20					
5	5	500	20					
6	6	600	30					
7	7	700	30	35				
8	8	800	40	70	100			
9	8	900	40	70	100	20		
10	8	1000	50	70	200	40		
11	8	1000	50	70	200	40	50	20
12	8	1000	30	70	300	60	50	20

Continue for three weeks.

In the course of any diet cure for ulcer other factors must be borne in mind as of equal importance. The patient is kept on his back in a state of physical and mental rest, an ice bag is kept on the abdomen, and large doses of alkali and of bismuth subcarbonate, used in cases of hypersecretion, usually are necessary. Many cases need no medication other than this. We have usually prescribed sodium bicarbonate and light calcined magnesia, 10 grains of each every 4 hours,

alternating with bismuth subcarbonate gr. xv or xxx every 4 hours.

Many physicians recommend absolute rest for the stomach for a few days before starting any diet regime. Some cases will even require rectal feeding for a few days. Oftentimes milk is not well borne, and as this forms the basis of the usual ulcer diet, it must be peptonized or modified by the addition of lime water or barley water, or some other alkaline water.

Cases of ulcer of the stomach cannot be treated by any hard and fast rule, but they must be individualized and fed accordingly. As there are several types of ulcers, different methods of diet as well as of medication must be used in treating them. The following plan has been used successfully in the treatment of some ulcer cases at The Michael Reese Hospital. It is impossible to give any stated length of time for the use of the diet at the beginning. It may only be necessary to continue milk and cream for three or four days, and it may have to be used for a much longer time. That must be decided by the physician according to the condition of the patient. Many patients will be able to reach the sixth stage at the end of two or three weeks. This diet, a gastro-intestinal diet similar to that given on page 169, must be followed for some weeks. Additions to the diet from this time should only be made by the physicians in charge, as the patient is not cured when he leaves the hospital, and he must be told plainly the danger of a return of his trouble if he returns to a normal diet too rapidly.

GASTRIC ULCER DIET.

(Diet for beginning of treatment.)

I.

Milk 2 oz. with cream $\frac{1}{2}$ oz. every 2 hours.

II.

- 6 *A. M.* Milk 4 oz. with 1 oz. cream.
8 *A. M.* Strained gruel 3 oz. with 1 oz. cream, 1
soft-cooked egg, milk 4 oz., with 1 oz.
cream.
10 *A. M.* Egg nog (1 egg with 4 oz. milk).
12 *M.* Cream soup 4 oz., custard 4 oz., cocoa
4-6 oz.
2 *P. M.* Junket 4 oz.
4 *P. M.* Egg nog (1 egg and 4 oz. milk).
6 *P. M.* Strained rice 3 oz. with 1 oz. cream, milk
toast 1 slice, cocoa 4-6 oz.
8 *P. M.* Hot malted milk 6 oz.

III.

- 8 *A. M.* Strained cereal 4-5 tablespoons, cream 1
oz., 1 soft egg, 1 slice thinly buttered
toast, cocoa 4-6 oz.
10 *A. M.* Egg nog (1 egg with 6 oz. milk).
12 *M.* Cream soup 4 oz., mashed potatoes 2-3
tablespoons, pea puree 2-3 tablespoons,
1 slice thinly buttered toast, cocoa 4-6
oz.

- 3 *P. M.* Egg nog (1 egg and 6 oz. milk).
 6 *P. M.* Strained cereal 4-5 tablespoons, cream 1 oz., 1 thinly buttered slice toast, soft custard, cocoa 4-6 oz.
 8 *P. M.* Milk 6 oz or cocoa 6 oz. with 2 soda crackers.

IV.

- 8 *A. M.* 1 coddled egg, strained fruit 2-3 tablespoons, strained cereal 4-5 tablespoons, 1 oz. cream, 1 slice crisp toast thinly buttered, cocoa 6 oz.
 10 *A. M.* Egg nog (1 egg with 6 oz. milk).
 12 *M.* Cream soup 4 oz., pea puree 2-3 oz., 1 small meat ball, mashed potatoes 3 tablespoons, junket (plain, caramel or chocolate), cocoa 6 oz., 1 slice thinly buttered toast.
 3 *P. M.* Custard or gelatin 4-5 oz., milk 4-6 oz.
 6 *P. M.* Strained cereal 4-5 tablespoons with 1 oz. cream, 1 poached egg, 1 slice thinly buttered toast, strained fruit 2-3 tablespoons, cocoa 6 oz.
 8 *P. M.* Milk 6 oz. or cocoa or chocolate 6 oz.

V.

- 8 *A. M.* Strained fruit 2-3 tablespoons, strained cereal 4-5 tablespoons with 2 oz. cream, 1 slice thinly buttered toast, 1 coddled egg, cocoa 6 oz.

- 10 *A. M.* Milk 6 oz. with 2 soda crackers, custard or gelatin 4-5 oz.
- 12 *M.* Cream soup 4 oz., very finely minced chicken 2-3 tablespoons, mashed potatoes 2-3 tablespoons, pea puree 3-4 tablespoons, soft pudding 4 oz., 1 slice thinly buttered toast, cocoa 6 oz.
- 3 *P. M.* Egg nog (1 egg and 6 oz. milk).
- 6 *P. M.* Strained cereal 4-5 tablespoons, cream 2 oz., 1 poached or coddled egg, 1 slice thinly buttered toast, strained fruit 2-3 tablespoons, cocoa 6 oz.
- 8 *P. M.* Milk 6 oz. with soda crackers or cocoa with crackers or chicken broth with crackers.

VI.

Gastro-intestinal Diet similar to that given on page 169, avoiding sharp acids.

More rigid cures are prescribed when the symptoms or signs point to a deeper ulcer. Personally we do not starve except for hemorrhage or where there has been evidence of considerable gastric irritation; in the latter instance only until the disappearance of nausea and vomiting; in the case of hemorrhage for 2 to 4 days. The food is begun very slowly, usually on the first day $\frac{1}{2}$ oz. each of milk and cream every hour for 12 feedings, and continued according to the reaction of the patient.

When the patient is ready to get up and out he must be impressed with the fact that although his diet is being changed, he is to continue to take small doses of bland foods at frequent intervals; that all highly seasoned foods, fried foods, pastries or other rich foods are to be avoided; that alcohol and coffee are poisons to him, and that he should never let himself get hungry.

With some little application at first most patients soon learn to develop a diet suitable to their taste as well as the disease, and they get along very well. But at times the construction of proper menus is difficult, and to ease this burden we refer to some specimen menus which have given satisfaction. (See page 169).

RULES FOR GASTRIC ULCER PATIENTS.

(Post Hospital Care.)

1. Avoid irregularity of meals.
2. Do not eat late dinners or midnight suppers.
3. Do not over-eat.
4. Avoid highly-seasoned foods, pickles, pastries, fried foods, raw foods, coarse vegetables or any vegetables not thoroughly cooked and strained, coffee or tea, alcoholic beverages, acid foods, very hot or very cold foods or beverages.
5. Remember that your diet and your method of living require supervision for many months.

NERVOUS DYSPEPSIA

Ulcer of the stomach is an organic disease—undoubtedly the most common organic stomach disease, but it is probably true that most patients who complain of symptoms referable to the stomach have no organic stomach disease. A person may have pain and other pronounced symptoms of stomach trouble, without the stomach itself being diseased. Such symptoms are usually due to disturbances somewhere in the very complex nervous mechanism controlling the work of the stomach. The nervous control of all organs can be compared to the system of wires controlling a telephone exchange. A short circuit in the basement may upset the whole service, or it may merely interfere with the 'phone in one's office. So, a mental or an emotional shock may upset the nervous control of the stomach; fright may produce nausea, intense mental application not uncommonly upsets a man's digestion, and the overtired athlete has been known to end a race with an attack of vomiting. Such examples of emotional and mental control are easy to grasp, because they have been experienced by most of us. Such nervous conditions, or as they are called "gastric neuroses," while not serious, may be extremely distressing and require considerable care in treatment. Many cases are based on a change or disease elsewhere in the body, and the stomach symptoms then have to be considered secondary to the seat of the trouble.

These nervous derangements of the stomach are classified into (a) motor, (b) secretory and (c) sen-

sory disturbances, although rarely does one encounter a pure type, as most cases of nervous dyspepsia show symptoms referable to all three functions of the stomach. From the standpoint of dietetic therapeutics it is not necessary to give details about the various types of such conditions encountered in practice; merely to mention the many and varied possible symptoms will suffice for our purpose. Gurgling and movements in the stomach, eructations of gas (many patients call this "gas-tritis"), vomiting, spasmodic pain, dull aches, heart-burn, variations in appetites may occur singly or in a group large enough and distressing enough to make a person think his illness is most serious. It cannot be emphasized too often that if these symptoms are traced to an underlying physical or nervous disturbance, treatment must be directed to the primary cause of the trouble. It will do no good to prescribe a diet for a woman whose symptoms are due to exhaustion from work or worry or from a fibroid of the uterus, unless we also treat the cause. In many men too much work and too little exercise causes constipation and many stomach symptoms, and in such men a diet aimed merely at the stomach symptoms is very likely to increase the constipation and do more harm than good.

But if no cause can be found for symptoms, and the careful use of the stomach tube, especially the new tube of Rehfuß, has shown the exact functional derangement in the stomach, treatment for the stomach will often produce good results. The functional dis-

turbance most generally encountered is an excessive secretion of gastric juice of high acidity, the same condition found in ulcer of the stomach. In such cases the diet already planned for the second stage of ulcer should be used. (See page 169.) Increased motility of the stomach produces some of the symptoms enumerated, but this condition is generally associated with hypersecretion and requires practically the same treatment.

ATONY OF THE STOMACH

Atony of the stomach—weakness of the muscular walls—requires a different regime. Here the functional disturbance is caused by an inability of the stomach to perform its muscular work; the diet then should be one which while not putting a burden on the stomach will nevertheless gradually strengthen the walls, so that ultimately they will do their work. The most important elements would be the restriction of the amount of food and fluid taken at any time, and the use of food which does not require excessive muscular work.

Friedenwald and Ruhrah recommend the following diet for atonic dyspepsia:

7 A. M.	Orange juice 40 gms.....	80 cal.
8 A. M.	200 gms. milk	135
	1 soft-boiled egg	80
	60 gms. toast	154
	40 gms. butter	325
10 A. M.	100 gms. raw scraped beef....	118
	60 gms. stale wheat bread...	154

12 M.	100 gms. broiled steak	209
	or	
	100 gms. lamb chops	230
	or	
	100 gms. stewed chicken	106
	200 gms. asparagus	37
	or	
	100 gms. peas	
	or	
	100 gms. spinach	
	100 gms. mashed potato	127
	100 gms. apple sauce	53
	50 gms. stale bread	130
3 P. M.	200 gms. milk	135
	60 gms. wheat bread	154
	40 gms. butter	325
7 P. M.	100 gms. boiled rock fish	80
	100 gms. milk	67
	60 gms. bread	154
	40 gms. butter	325
		<hr/>
		2850

Hutchinson prohibits the following foods in cases of atonic dyspepsia:

1. All green vegetables except spinach and cauliflower. Turnips, carrots, peas, beans and lentils.
2. Fruits except baked apples and stewed prune pulp.
3. Sugars and jam.
4. Soups.

5. Bread not toasted.

6. Tea.

Potatoes may be taken very sparingly and coffee with plenty of milk. However, as little fluid as possible must be taken with meals.

Salisbury advocates an exclusive meat diet for atonic dyspepsia of a very severe type:

7 A. M. Hot water.

8.30 A. M. Minced beef 2 oz. and upward.
Water 1 pt. or less.

12 M. Hot water.

1.30 P. M. Minced beef 2 oz. and upwards.
Water 1 pt. or less.

5 P. M. Hot water or clear tea.

6.30 P. M. Minced beef 2 oz. and upwards.
Water 1 pt. or less.

10 P. M. Hot water.

The water should be sipped slowly at about 120 F., and not over 1½ qts. should be taken daily. *Salisbury* advocates this treatment only in exceptionally severe cases having a liberal gastric secretion, and even then for a period not exceeding six weeks.

ACHYLIA GASTRICA

One condition sometimes occurring as a gastric neurosis is known as "achylia gastrica"—a disease of the stomach in which too little gastric juice is secreted. This condition may occur in cancer of the stomach, chronic gastritis, as a gastric neurosis and occasionally

as a secondary manifestation of disease elsewhere in the body. Since there is in this condition an absence of gastric juice, the diet should be easily digestible, and should be well prepared, so that the work of the stomach is lessened. We append a week's diet for such cases, the diet known in the Michael Reese Hospital as the "Gastro-intestinal Diet." The use of dilute hydrochloric acid and pepsin as an accessory to the diet is especially valuable in these cases.

GASTRO-INTESTINAL DIET.

Sunday.

Breakfast: Strained pears, strained farina and cream, two eggs, toast, butter and cocoa.

Dinner: Cream of tomato soup, finely minced chicken, mashed potatoes, strained peas, tapioca cream, toast, butter, jelly and cocoa.

Supper: Strained rice and cream, two eggs, strained carrots, strained apricots, cocoa, toast and butter.

Monday.

Breakfast: Strained apple sauce, strained oatmeal with cream, two eggs, cocoa, toast and butter.

Dinner: Cream of corn soup, finely minced roast beef, mashed potatoes, strained asparagus tips, chocolate cornstarch pudding, cocoa, toast and butter.

Supper: Strained hominy grits, two eggs, strained spinach, strained peaches, cocoa, toast and butter.

Tuesday.

Breakfast: Strained prunes, two eggs, strained wheatena with cream, cocoa, toast and butter.

Dinner: Cream of cauliflower soup, finely minced roast lamb, mashed potatoes, strained lima beans, Spanish cream, cocoa, toast, butter and jelly.

Supper: Strained Pettijohn's, two eggs, celery puree, strawberry whip, cocoa, toast and butter.

Wednesday.

Breakfast: White cherry juice, strained cream of wheat with cream, two eggs, cocoa, toast and butter.

Dinner: Cream of pea soup, finely minced chicken, mashed potatoes, strained beets, pineapple gelatin, cocoa, toast and butter.

Supper: Strained cracked wheat with cream, two eggs, carrot puree, strained pears, cocoa, toast and butter.

Thursday.

Breakfast: Strained apple sauce, strained Ralston's breakfast food with cream, two eggs, cocoa, toast and butter.

Dinner: Cream of lima bean soup, scraped beef balls, mashed potatoes, strained spinach, grape juice souffle, cocoa, toast and butter.

Supper: Strained rice with cream, two eggs, strained peas, prune whip, cocoa, toast and butter.

Friday.

Breakfast: Strained peaches, strained oatmeal with cream, two eggs, cocoa, toast and butter.

Dinner: Cream of celery soup, finely minced fish, mashed potatoes, strained cauliflower, caramel junket, cocoa, toast, butter and jelly.

Supper: Strained Indian meal with cream, two eggs, strained asparagus tips, raspberry juice, cocoa, toast and butter.

Saturday.

Breakfast: Strained prunes, strained farina with cream, two eggs, cocoa, toast and butter.

Dinner: Cream of spinach soup, finely minced lamb, mashed potatoes, tomato puree, maple mousse, cocoa, toast and butter.

Supper: Strained Pettijohn's with cream, strained corn, two eggs, strained blackberries, cocoa, toast and butter.

CHRONIC GASTRITIS

Chronic inflammation of the wall of the stomach is in practice a comparatively rare disease, and is seen usually only in persons who have exposed their stomachs to the *continued* insults of alcohol, or poorly cooked foods, of foods too hot or drinks too cold. It frequently also occurs as a secondary manifestation of some constitutional disease, such as anemia, diabetes or especially tuberculosis; and it may accompany local disorders of the stomach, especially cancer. The con-

dition of the stomach secretions may vary with the stage of the disease; at first an acid secretion may be found, but, if the disease is of any standing, anacidity is almost sure to be present. Mucus is always found in true gastritis.

Dietetic treatment in this condition is of the utmost importance, but there cannot be a standard diet for all such patients. First of all the actual cause of the condition must be ascertained and corrected. If the patient drinks too much alcohol, no diet will help him until the alcohol is removed from his day's routine. If excessive indulgence in hot breads is responsible, hot breads must be removed.

After the cause of the disturbance is corrected, a well-balanced diet can easily be constructed, but in the menu due attention must be paid to idiosyncrasies of the patient. It is a well known fact that a food which one man can digest will produce serious stomach symptoms in the next, and it is useless to attempt to force all patients to take the same cure. Certain fundamental facts are apparent in any diet for chronic gastritis. (1) Food must not be irritating to the already irritated stomach wall, and (2) it should be "bland." The gastro-intestinal diet already given (page 169) offers a good basis for treatment.

CANCER OF THE STOMACH

The dietetic aim for a patient with cancer of the stomach would be to give him as much comfort as possible, and to allow him to eat what agrees with

him. A distaste for meats is common with such patients, and usually fluids and soft foods are best borne. It is often difficult to stimulate the appetite for any foods, and it seems to us of far more importance to prepare the food in an enticing way than to direct the use of any special foods. If the caprices of appetite carry a patient beyond the bounds of the theoretically indicated foods he should be allowed to follow his whims. Those in charge of patients with cancer must learn to cater to their appetites, but they must also learn to see that the food contains nourishing substances. Almost any taste can be gratified by care in selecting and preparing the articles of diet. (See page 186.)

CHAPTER VIII.

DISEASES OF THE INTESTINES

ACUTE DIARRHEA

Diarrhea as an acute manifestation is perhaps most frequently caused by the same agents as produce acute indigestion—or acute gastritis: something wrong with the food or drink.

The diet for an acute diarrhea must be an easily digested non-irritating one. In very severe cases abstinence from all food is often advisable. Barley water, weak tea, or plain water may be given to quench thirst. Weak cereal waters and gruels given at body temperature afford the first nourishment given following the fasting; thin broths, bouillons and albumen waters, boiled milk diluted with lime water, beef juice, cold tea flavored with a little lemon juice are often well used after the cereals. It is, of course, impossible to prescribe any set diet for diarrheas. The cause of the diarrhea must be found first and the diet will be governed by this, of necessity. In general, however, it is safe to say, that in cases of either acute or chronic diarrheas all bulky foods, fruits, sour foods, hot liquids and alcoholic beverages should be avoided. This proscribed list would contain green vegetables, coarse breads, fruits, coffee.

If the disease has been acute and the cause has been found and removed, it is often well to proceed as in the case of chronic diarrheas in order to avoid irritat-

ing the intestines. If milk can be taken at all, and one must proceed with caution in determining this, the food value of the diet will more easily approach the normal. A few diets beneficial in some cases are given here:

BREAKFAST.

I.

Strained Farina with Cream,
Toast with Butter,
1 Soft Cooked Egg,
Cocoa.

II.

Strained Cream of Wheat with
Cream,
Toast with Butter,
1 Soft Cooked Egg,
Milk.

DINNER.

I.

Cream Soup (Asparagus),
Crackers,
Minced Chicken,
Mashed Potatoes,
Cornstarch Pudding,
Cocoa, Toast and Butter.

II.

Cream Soup (Tomato),
Crackers,
Minced Fish,
Mashed Potatoes,
Tapicoa Pudding,
Cocoa or Milk. Toast and
Butter.

SUPPER.

I.

1 Soft Cooked Egg,
Well Baked Potato,
Custard,
Cocoa, Toast and Butter.

II.

1 Soft Cooked Egg,
Strained Rice with Cream,
Chocolate Pudding,
Cocoa, Toast and Butter.

Note. Strained vegetables, as spinach, asparagus and celery, may be used with the noon meal in some cases. Boiled milk is preferable to raw milk in most cases.

CHRONIC DIARRHEA

Diarrhea, constipation and pain in the abdomen are the three most usual symptoms of intestinal disease,

but what has already been said as to the necessity of diagnosing the cause of symptoms in stomach disease refers with equal force to the intestines. Diarrhea may arise as a result of constipation, and constipation itself may result from all sorts of causes. If a patient has diarrhea as a result of the irritant action of fecal masses, dietary regulations directed to the diarrhea will only increase the symptoms; constipation may come from bad habits of living or of going to stool, it may be the result of obstruction of the bowels from various causes, or it may be a secondary manifestation of some stomach disturbance. Of course, exactly the same condition exists as regards pain in the abdomen. Therefore, no symptom or group of symptoms of disease of the intestinal tract should receive medical or dietetic treatment until the underlying cause is ascertained. However, when the real disturbance is once proved diet will be found often the most valuable therapeutic asset.

We must assume then that a diagnosis has been established, and that the diarrhea to be treated belongs to one of the groups commonly encountered, which may be conveniently discussed under the following classification: (1) Diarrhea due to Chronic Colitis; (2) Mucous Colitis; (3) Achylia Gastrica; (4) Diarrhoea Nervosa; (5) Amebic Dysentery; (6) Small Intestine Inflammation; (7) "Food Diarrheas."

There is considerable discussion as to the use of various articles of food in these diarrheas, but it seems to us that as Friedman [Med. Cl., Chic. Vol. 2, Sept.,

1916, p. 354.] says, the manner of preparing the food is of greater importance than the nature of the food given. All irritating parts of food and substances not easily absorbable are certainly contra-indicated. Therefore, if meat is given it should be scraped; if vegetables are added they must be pureed.

In the nervous diarrheas produced so easily by the slightest emotion in a susceptible individual dietary restrictions seem decidedly out of place. Such patients are apt to be under-nourished anyhow, and attention to their diet will concentrate interest on their ailments and cause a pronounced vicious circle, which will result in even greater under-nourishment. The way to treat these patients is by upbuilding the nervous system and re-education. In the cases of so-called mucous colitis some men achieve better results by a heavy diet aimed at the constipation, others advise bland food. We believe that in these cases the diet to be used will depend on the nature of the constipation; if it is of the spastic type a bland diet is indicated, if atonic then the heavy constipation diet will give better results.

DIET FOR CHRONIC DIARRHEA.

(Friedenwald and Ruhrah.)

- 8 A. M. 200 gms. of cocoa (cooked in water).
2 soft-boiled eggs.
50 gms. toast.
- 10 A. M. 250 gms. broth with 1 egg.
30 gms. Panopeptone.

- 12 M. 250 gms. broiled chicken.
30 gms. toast.
200 gms. mashed potatoes.
- 4 P. M. 50 gms. Panopeptone.
1 soft-boiled egg.
200 gms. cocoa (cooked in water).
50 gms. toast.
- 7 P. M. 100 gms. rice cooked in bouillon.
200 gms. sweetbread.
50 gms. wheat bread.
- 9 P. M. 100 gms. raw scraped beef.
50 gms. Panopeptone.
50 gms. toast.

CONSTIPATION

Constipation as a symptom of other diseases of the intestines need not be discussed in these pages. As a clinical entity—a disease in itself, it occurs frequently enough to warrant our devoting considerable space to it. Strangely enough some persons have symptoms when the bowels do not move at an appointed hour each day, whereas others go through life constipated and symptomless. In some persons constipation is like Topsy; despite a normal life in every particular it “just grows,” and very frequently this tendency runs in families. In most persons, however, constipation can be traced to the method of living or the method of eating. Too frequently busy men or careless women seem to forget that attention to their bowels is as important to health as attention to their business or

household is to success. The man who rushes from his breakfast to his business and from his business to his pleasures, and thus finds no time to attend to the call of Nature, soon finds that the call no longer is made; and unless he checks himself in time, he ultimately finds himself a habitual user of little pills or a chronic drinker of laxative waters. His bowels which he refused to care for no longer care for him, and habitual constipation is his portion. Then there are persons whose interest in food is to tickle the palate, and who pay no attention to the needs of the stomach or intestine; one may eat food containing more residue or undigestible material than his intestines have the power to get rid of, the other may not eat enough of the coarser foods to provide a stimulus to the intestine. In making out a normal diet due attention is not always paid to the elements of food which affect intestinal movements. There is another class of persons—the so-called nervous dyspeptic—who without an organic stomach trouble nevertheless have numerous stomach complaints traceable to an excessive secretion of gastric juice due usually to some nervous complaints. Whatever be the original stimulus to these stomach symptoms, constipation generally accompanies or follows, and a vicious circle is established; constipation intensifying the nervous symptoms and the dyspepsia intensifying the constipation through the fear of proper food.

The pathological condition of the intestines in constipation usually may be discovered by physical and

X-Ray examination, and should be determined before treatment is instituted. Most cases of constipation may be classified under one of three types (*a*) the atonic colon, (*b*) the spastic colon, (*c*) the dilated rectum. Probably the most common type encountered is the atonic colon.

Practically all patients except those with the spastic colon or with the dilated rectum can be subjected to the same general scheme of treatment, and can be promised relief if they persevere in following the rules. Although the diet plays a most important role, other elements dealing with one's daily routine enter into the treatment, especially regularity in eating, in exercise and in attention to the bowels. In those patients whose constipation seems the result of too little attention to the bowels especial insistence on regularity must be enjoined. Those who have neglected exercise and have spent their whole time seated at a desk need exercise; either muscular movements, which are so pronounced an aid, or outdoor exercise. The nervous dyspeptic whose stomach symptoms are definitely proved to be functional will often be surprised at the ease with which he can digest a dinner of corned beef and cabbage, or other coarse food. But in all patients a routine must be enjoined and must be adhered to. We have been accustomed to order patients to follow a general scheme which, of course, must be varied to suit the individual needs, but which in general takes this form. (1) Immediately on arising a glass of hot water, (2) all meals at regular hours, (3) a set time

each day for the visit to the toilet. This *can not* be varied, once a set time is settled, and the performance of this duty must be considered almost a rite. (4) At least one hour's exercise a day, (5) water in plenty between meals, (6) fresh or cooked fruit before retiring (*vide infra*) and (7) gradual reduction of all medication.

To indicate the kind of food of service in constipation we give a list of foods which we consider beneficial and a week's menus.

DIET FOR CHRONIC CONSTIPATION.

Soups. Meat broths, stock soups with vegetables.

Meats. Raw oysters, fresh fish, poultry, fresh meat of almost any kind except pork.

Vegetables. Spinach, peas, green corn, string beans, cauliflower, cabbage, lettuce, celery, onions, tomatoes.

Cereals. Oats, wheatena, mush (graham or cornmeal), hominy grits. (Cereals are better cooked with one-third bran.)

Bread. Bran, whole-wheat, graham, rye, corn-breads.

Fats. Olive oil, butter and bacon.

Fruits. Prunes, dates, figs, raisins, oranges, apples, berries with seeds, peaches, melons.

Fluids. Water in abundance, weak coffee, new cider, unfermented grapejuice, buttermilk.

Cake. Gingerbread, gingersnaps.

Desserts. Ices, light apple, date or fig puddings, gelatines, agar-agar.

Miscellaneous. Marmalade, honey, molasses in moderate amounts.

Avoid. Tea, cocoa, chocolate, spirituous liquors, rice, tapioca, farina, pineapple, cheese, nuts, sweet milk, eggs, salted fish or meats, rich puddings or pastry, fried foods.

Remarks. Two glasses of water (hot or cold) taken before breakfast, and fruit before retiring are especially beneficial. Balance the meals, that is, have variety each time, using meat, vegetables, fruits and so forth, with each meal.

SUNDAY.

Breakfast: Cantaloupe, farina and cream, bacon, coffee, graham bread, butter.

Dinner: Stock soup, chicken, celery, mashed potatoes, olives, string beans, tomato salad, ice cream, wafers, coffee, graham bread and butter.

Supper: Cold beef, baked sweet potato, hominy grits with cream, stewed grapes, ginger cake, cocoa, graham bread and butter.

Lunches: 10 A. M., Buttermilk 6 oz. 3 P. M., Orange gelatin.

MONDAY.

Breakfast: Sliced oranges, broiled smelts, oatmeal with cream, coffee, graham bread and butter.

Dinner: Stock soup, roast beef, mashed potatoes, cauliflower with butter sauce, lettuce salad with lemon juice and olive oil, caramel junket, coffee, rye bread and butter.

Supper: Lamb chops, baked potatoes, asparagus salad with lemon and oil, raspberries, ginger bread, cocoa, graham bread and butter.

Lunches: 10 A. M., Buttermilk 6 oz.; 3 P. M., Orangeade with graham crackers.

TUESDAY.

Breakfast: Stewed prunes, bacon, farina with cream, coffee, whole wheat bread, butter.

Dinner: Beef bouillon, broiled steak, preserves, mashed potatoes, ripe olives, fresh spinach, tomato salad, Spanish cream, coffee, bran bread and butter.

Supper: Oyster stew, stuffed potatoes, broiled onions, baked apple with cream, cocoa, whole wheat bread and butter.

Lunches: 10 A. M., Orange gelatin; 3 P. M., Buttermilk 6 oz.

WEDNESDAY.

Breakfast: Grapefruit, wheatena with cream, coffee, graham bread and butter.

Dinner: Stock soup, roast lamb with currant jelly, mashed potatoes, asparagus tips, romaine salad with lemon juice and olive oil, prune whip, coffee, graham bread and butter.

Supper: Cold chicken, escalloped potatoes, stewed corn, fruit salad, custard, cocoa, graham bread and butter.

Lunches: 10 A. M., Grape juice 6 oz., with graham crackers; 3 P. M., Buttermilk 6 oz.

THURSDAY.

Breakfast: Apple sauce, broiled perch, Pettijohn's with cream, coffee, whole wheat bread with butter.

Dinner: Vegetable soup, broiled steak, broiled potatoes, Brussels sprouts, watercress salad; celery, orange ice, coffee, bran bread and butter.

Supper: Breaded veal cutlets, potato cakes, cornmeal with cream, shredded lettuce, peaches, ginger snaps, cocoa, whole wheat bread, butter.

Lunches 10 A. M., Orangeade; *3 P. M.,* grape gelatin.

FRIDAY.

Breakfast: Stewed pears, oatmeal with cream, bacon, coffee, graham bread, butter.

Dinner: Tomato bouillon, baked whitefish, mashed potatoes, glazed carrots, lettuce salad with lemon juice and oil, date pudding, coffee, graham bread and butter.

Supper: Lamb chops, creamed potatoes, buttered beets, apricots, cocoa, rye bread, butter and orange marmalade.

Lunches: 10 A. M., Buttermilk 6 oz; *3 P. M.,* Orangeade.

SATURDAY.

Breakfast: Stewed prunes, cracked wheat with cream, coffee, rye bread and butter.

Dinner: Stock soup, roast beef, mashed potatoes, tomatoes, olives, chicory salad, stewed figs, coffee, rye bread and butter.

Supper: Mock duck, persillade potatoes, creamed onions, stewed cherries, cocoa, whole wheat bread and butter.

Lunches: 10 A. M., Beef or chicken broth 6 oz.; 3 P. M., Orange gelatin.

This diet will be found beneficial for most cases of constipation, but it is doubtful if it will benefit the patients with a spastic colon or with the weak dilated rectum. Such patients require a less bulky diet which, however, should contain starches, fruit juices and strained vegetables. The gastro-intestinal diet (page 169) forms a good basis for treatment.

SPECIAL RECIPES FOR GASTRO-INTESTINAL DIETS.

White Sauces for Vegetable Purees.

I.

1 cup milk, 1 tablespoon butter, 2 tablespoons flour, $\frac{1}{8}$ teaspoon salt.

Melt butter and add flour to it. Heat milk in double boiler, and slowly add butter and flour and salt, stirring until the mixture thickens. Cook 20 to 30 minutes.

II.

1 cup milk, 1 tablespoon butter, 3 tablespoons flour, $\frac{1}{8}$ teaspoon salt.

Prepare in the same way as above.

For *Spinach* puree use 2 tb. strained spinach and 2 or 3 oz. of I.

For *Tomato* puree use $\frac{1}{4}$ cup strained tomatoes, $\frac{1}{8}$ tp. soda and 2 or 3 oz of II. Note: Heat tomatoes and add soda before mixing tomatoes and white sauce.

For *Carrot*, *Pea*, *Celery* and *Lima Bean*—same as for spinach.

For *Asparagus* and *Corn*— $\frac{1}{4}$ cup strained vegetable and 2 to 3 oz. of II.

Note: Soups given in Chapter V may be used for stomach and intestinal cases also. Soft puddings given in same chapter may also be used. In each chapter only recipes not already given in previous chapters are found, but many recipes may be used for different diseases, although they are only given once.

MEATS.

Scraped beef: Take a slice of round steak about $\frac{3}{4}$ inch to 1 inch thick and scrape meat from the fibres with a metal spoon. Scrape with the grain of the meat. Make this into cakes and pan broil lightly and serve hot. Season with speck of salt.

Minced or ground beef or lamb: Take slices of well-cooked lamb or beef and free them from fat and gristle as nearly as possible. If a grinder is used one must have very fine knives and the meat must be finely divided. If chopped, chop as finely as possible. The meat may be served with gravy from which the fat has been removed.

Minced chicken: Chop or grind chicken very finely. Serve with white sauce or with chicken gravy from which the fat has been removed.

Minced fish: Broil or bake fish until tender. Pick out all bones and chop finely. Serve with white sauce or with a little butter.

DESSERTS.

Orange Gelatin.

1 tablespoon gelatin (Knox's gran. gelatin), $\frac{1}{2}$ cup orange juice, 1 cup boiling water, $\frac{1}{4}$ cup cold water, 2 tablespoons lemon juice, $\frac{1}{2}$ cup sugar.

Soak gelatin 15-20 minutes in cold water. Add boiling water to dissolve gelatin; then add fruit juices and sugar.

Strawberry, Raspberry, Blackberry or Pineapple.

8 oz. fruit juice, 1 tablespoon lemon juice, 3 tablespoons cold water, 1 tablespoon gelatin, $\frac{1}{2}$ cup boiling water, (sugar if needed).

Use method of preparation given above.

Wine Gelatin.

1 tablespoon gelatin, $\frac{1}{4}$ cup cold water, $\frac{3}{4}$ cup sugar, 1 cup boiling water, 1 tablespoon port wine, 3 tablespoons sherry.

Prepare same as orange gelatin.

Baked Custard.

1 cup milk, 1 tablespoon sugar, 1 egg, 2-3 drops vanilla.

Beat eggs, add sugar. Warm milk and mix with eggs and sugar. Add vanilla and pour mixture into moulds. Set these in pan of hot water to bake. When a silver knife thrust into the cus-

tard comes out clean, the custard is done. Do not over-cook as over-cooked custard is watery and hard and not fit to serve to sick or well.

Tapioca Custard.

1 tablespoon minute tapioca, 2 tablespoons sugar, 1 cup milk, $\frac{1}{8}$ tp. vanilla, 1 egg.

Scald milk in double boiler. Add tapioca and cook 20 minutes. Beat egg yolk and add to mixture, stirring until it thickens. Then fold in the white of egg and sugar stiffly beaten. Remove from fire and add flavoring.

Floating Island.

1 cup milk, 1 tablespoon sugar, 1 egg, 4-5 drops vanilla, 2 tablespoons currant jelly.

Scald milk in double boiler. Beat egg yolk, add sugar and stir slowly into the hot milk, cooking until it begins to thicken. When cool, flavor and pour into a dish. Beat egg white stiffly, add jelly a little at a time. Heap this upon the custard and serve.

Charlotte Russe.

1 cup rich cream, $\frac{1}{4}$ cup powdered sugar, $\frac{1}{4}$ teaspoon vanilla.

Have cream very cold. Whip stiffly and add sugar and vanilla. Serve cold with chocolate sauce or soft custard or plain.

Italian Mousse.

1 square chocolate, $\frac{1}{4}$ cup powdered sugar, 2 teaspoons gelatin, 2 tablespoons boiling water, $\frac{1}{2}$

cup thin cream, $\frac{1}{2}$ cup sugar, 1 pint whipping cream, $\frac{1}{2}$ teaspoon vanilla.

Melt chocolate, add powdered sugar and thin cream gradually. Cook in double boiler. Add gelatin dissolved in water, sugar and vanilla. Strain and set in ice and beat until mixture thickens. Whip heavy cream and fold into first mixture. Turn into dish and let set or put in freezer can and let stand surrounded by one part salt to 2 parts ice for 3-4 hours.

Spanish Cream.

1 teaspoon gelatin, 1 cup milk, 1 egg, 2 tablespoons sugar, $\frac{1}{4}$ teaspoon vanilla.

Scald milk with gelatin, add sugar and pour slowly on slightly beaten egg yolk. Cook in double boiler until mixture thickens, stirring constantly. Add egg white beaten stiff and flavoring. Turn into moulds dipped in cold water and chill.

Prune or Apricot Whip.

$\frac{1}{4}$ cup strained fruit, 2 tablespoons sugar, 1 egg white, $\frac{1}{2}$ teaspoon gelatin, 2 tablespoons boiling water, 1 tablespoon lemon juice (if prunes are used).

Dissolve gelatin in boiling water. Beat egg white stiffly and add fruit pulp gradually. Add sugar, lemon juice and dissolved gelatin, beating thoroughly. Turn into moulds, chill and serve.

CHAPTER IX

DISEASES OF THE LIVER

Whether the so-called attacks of "biliousness" so frequently complained of by patients are to be considered hepatic in origin, or whether they result entirely from intestinal stasis, is a disputed question. From a practical standpoint the treatment would be the same in either condition, for any treatment which would cause intestinal movements would be apt to cause an increased flow of bile from the liver. The old fashioned method of giving a dose of calomel and salts and a temporary starvation diet generally produced results, and certainly can not be improved upon unless one objects to the use of calomel as a purge. But in patients subject to such attacks prevention is better than cure, and the physician should attempt to discover the cause of the attacks. A person usually active, who is compelled to lead a sedentary life, and who as a result becomes constipated, is very likely to become "bilious" and just as likely to be free of his biliousness as soon as he has regular bowel movements. But there are persons subject to the vague symptom complex under discussion whose complaints definitely arise from dietary indiscretions. Such errors may take any form; one eats sweets in excess, the next eats too much fat. Usually only a cursory analysis of the patient's habits is necessary to detect the source of his complaints, and if detection is followed by abstinence, a cure will fol-

low. Alcohol is undoubtedly a common cause, and we are of the opinion that excessive smoking may likewise be indicted as a harmful agent in the production of "biliousness."

During an acute attack while the "cleaning out" process is taking place, as little food as possible should be taken and that should be easily digestible, not gas-forming, and with little fat, for example:

Breakfast: Tea, toast, oatmeal with a little milk and sugar.

Dinner: Soup, poached eggs on toast, baked apple, glass of milk.

Supper: Same as dinner.

Following the attack, food chosen from the following diet list may be taken, gradually increasing the variety and amount of the food until the diet approaches the normal as nearly as possible. In some cases no milk can be taken. Very little sugar should be used.

Lean beef or lamb, white lean fish, chicken, squab, sweetbreads, eggs, custard, junket, buttermilk, skimmed milk, green vegetables and salads (without oil), small amount of potatoes once daily, rice, tapioca, sago, fresh and stewed fruit (very little sugar), weak tea and coffee.

I.

Breakfast: Stewed prunes, oatmeal with milk, weak coffee with milk, dry toast.

Dinner: Vegetable soup, crackers, roast lamb (very lean), small serving boiled potatoes, junket, weak tea with milk, toast.

Supper: Poached egg, rice with milk, stewed apricots, weak tea with milk, toast.

Lunches: 10 A. M., orange gelatin; 3 P. M., 6 oz. buttermilk; 8 P. M., weak tea with crackers.

II.

Breakfast: Apple sauce, cream of wheat and milk, soft boiled egg, weak coffee with milk, toast.

Dinner: Cream of corn soup (made with milk), lean roast beef, mashed potatoes, fresh spinach, tapioca pudding, weak tea with milk, toast.

Supper: Soft boiled egg, rice with milk, stewed pineapple, weak tea with milk, toast.

Lunches: 10 A. M., broth with crackers; 3 P. M., custard.

III.

Breakfast: Grapefruit, wheatena with cream, poached egg, weak coffee with milk, toast.

Dinner: Stock soup with crackers, broiled sweetbreads, mashed potatoes, Brussels sprouts, tomato salad, custard, weak tea with milk, toast or stale bread.

Supper: Small serving cold chicken, French peas, baked apples, weak tea with milk, toast or stale bread.

CIRRHOSIS OF THE LIVER

The treatment of cirrhosis of the liver will depend first on the cause and second on the stage of the disease at which treatment is instituted. The commonest types of cirrhosis are those produced by alcohol and by syphilis; in both instances diet plays an important role

in cure, but the diet will be determined by the condition of the patient. It is a fact that many cases of cirrhosis of the liver are not diagnosed until long after the onset of the disease, when the symptoms are those of circulatory obstruction or of poisoning. If, however, a diagnosis is made early, excellent results can often be obtained by proper restrictions of food and drink. When alcohol has been the causative agent, abstinence must be practiced, and the temperate use of all foods urged. The food ingested should be of the non-irritating bland type, the amounts taken at any one time should not be large, the bowels must move regularly, and the patient should lead a well-regulated life. Even when alcohol is not the cause of the cirrhosis it must be strictly enjoined in all suffering from liver disease except when especially indicated as a stimulant.

Unfortunately most patients with cirrhosis of the liver come for treatment when there are many symptoms due to obstruction. These symptoms may vary from dyspepsia, nausea, vomiting—even hematemesis, to ascites. In such cases the condition of *all* the organs must be studied before treatment is instituted, and the diet to be prescribed will depend almost entirely on the condition of the other organs. If the symptoms are mainly gastric and there is no ascites, no heart or kidney involvement, a gastro-intestinal diet will be useful. Reference to the diets given in Chapter VII for chronic gastritis will be helpful in these cases. When ascites is present, with or without kidney disturbances, at least a temporary employment of a "dry" diet, or

even of the Karell milk cure is advisable. (See page 109).

DRY DIET.

The dry diet restricts fluids to two pints daily. It consists of the ordinary diet with no soups and very little tea or coffee.

When the kidney is involved, the diet to be used must depend on the function of the kidney. This has been discussed in full (see page 105). In the very late stages of the disease when the patient is evidently suffering from poisoning the treatment is eliminative, and the diet will be mainly composed of milk and milk products.

Finally, in summarizing, we would say in all cases of liver complaints, the *restrictions* are chiefly limited in three things, *fats*, *carbohydrates* and *alcoholic beverages*. The bile which is secreted by the liver is the chief emulsifier of the fats which are consumed. When the liver is diseased the flow of the bile is lessened and fats cannot be utilized by the body. Hence they are of no use to the body, so we necessarily restrict or prohibit their use according to the severity of the disease.

One function of the liver is to convert the sugar, which has entered the blood, into glycogen. If the liver is diseased its glycogen forming power is impaired so that the intake of starches and sugars must be lessened accordingly.

Alcoholic beverages, unless prescribed by the attending physician, should never be taken. Then they are usually given well diluted. It is a well known fact

that excessive or constant use of alcohol produces certain changes in the liver which hinders its usefulness.

GALL STONES

In gall stones and in inflammatory diseases of the gall bladder diet plays a prominent role both in prevention and treatment. Clinical and experimental evidence may be accumulated to prove a metabolic influence in gall stones—an influence which must be recognized even in those cases in which surgical interference is indicated. Persons having had gall stone attacks should learn certain dietary rules, the most important of which are (1) avoid fats; (2) prevent stasis of bile. The rules apply as well to the patient already treated surgically as to the one on whom we wish to prevent an operation, for it has been shown that in gall stone disease, as in many other abdominal conditions, surgery, under certain indications, acts to create a condition which cannot be maintained without continuous and careful control of the nutrition.

We have just stated that the first rule is the avoidance of fats, as fats are harmful in two ways: (1) they apparently exert a direct chemical influence on the formation of stones; (2) they produce indigestion and intestinal stasis. Intestinal stasis, by producing a slowing up of the whole intestinal canal, is likely to dam back the flow of bile, which would assist the formation of stones, not only because of the mechanical effect but because of the influence of bacteria.

In persons subject to gall stones an attempt should be made to have the flow of bile almost continuous, and perhaps the best way if not the only way to accomplish this end is by a diet making practically a continuous call on the liver. In other words, the patient should eat at frequent intervals, should even eat before retiring, and should break the long night fast by a large breakfast. In persons whose gall bladder has been drained a cessation of the flow of bile into the drainage tube can be demonstrated at night, and can be relieved by the giving of food.

A diet then based on the principles just outlined can be given as follows:

DIET LOW IN FAT.

Soups: Stock soups, meat broths, from which all fat has been removed.

Vegetables: Fresh and cooked, except peas and carrots and sweet vegetables.

Fruits: Oranges, lemons, grapefruit and unsweetened stewed fruit.

Cereals: Wheat, barley and rice cereals; sago and tapioca.

Fluids: Water, orange and lemon ades; whey or skimmed milk sometimes allowed; weak tea or coffee.

Breads: White bread, graham, rye, toast, crackers.

Meats: Lean beef, lamb, chicken or squab, white or lean fish (small amounts).

Dessert: Acid fruit gelatines and fruits.

Avoid: Fats and oils of all kinds; mutton, liver, calves brains, oily fish, viscera of animals, egg yolks, sweet fruits, peas, carrots, spices or condiments, pastries, alcoholic beverages.

Limit: Starches and sugars: milk, meat to once daily; use salt in moderation.

Diets.

I.

Breakfast: Stewed pears, oatmeal with skimmed milk, weak tea and dry toast.

Dinner: Chicken broth (all fat removed) with crackers, mashed potatoes, baked apple, weak tea and toast.

Supper: Wheatena with skimmed milk, stewed prunes, weak tea and toast.

Lunches: 10 A. M. Fruit juice 6 oz., graham
crackers.

3 P. M. Egg albumin.

8 P. M. Cup of weak tea.

II.

Breakfast: Apple sauce, farina with milk (sometimes milk must be skimmed), weak tea and dry toast.

Dinner: Cream of spinach soup (made with skimmed milk), mashed potatoes (small serving), strained carrots, pineapple gelatin, weak coffee and toast.

Supper: Rice with skimmed milk, stewed peaches, weak tea with toast.

Lunches: 10 A. M. Orangeade.
3 P. M. Weak tea with graham
crackers.
8 P. M. Broth with all fat removed.

III.

Breakfast: Sliced oranges, Pettijohn's with skimmed milk, weak coffee and toast.

Dinner: Stock soup, all fat removed, broiled white fish, mashed potatoes, asparagus tips, lemon ice, weak tea and toast.

Supper: Cottage cheese, baked potatoes, stewed blackberries, weak tea and toast.

Lunches: 10 A. M. 6 oz. grape juice.
3 P. M. 4-5 oz. orange gelatine.

IV.

Breakfast: Grapefruit, farina with skimmed milk, weak coffee and toast.

Dinner: Cream of tomato soup (skimmed milk), broiled or stewed chicken, mashed potatoes, baked squash, head lettuce salad with lemon juice, baked pear, weak tea, toast or stale bread.

Supper: Small slice of lean beef, baked potato, creamed celery (skimmed milk), stewed cherries, weak tea, toast or stale bread.

Lunches: 10 A. M. Buttermilk 6 oz.
3 P. M. Fruit juice 6 oz. with graham
crackers.

CHAPTER X.

DISEASES OF THE RESPIRATORY SYSTEM

Some diseases of the respiratory system are discussed under different headings, and in order to prevent repetition will not be mentioned in this chapter. In certain other diseases the diet plays no important role beyond that indicated for the general condition, of which the respiratory disturbance is a part.

PLEURISY

Pleurisy may be either dry or wet; in either case it is likely to be tuberculous in origin. In the dry fibrinous pleurisy certainly no especial dietary rules are indicated. If the disease is acute and febrile it should be treated as an acute fever (see Chapter XII, page 223), until the acute stage is past. When no longer acute, pleurisy means that the patient should be given the benefit of the doubt and should receive the same good nourishing food which is advocated in the treatment of pulmonary tuberculosis (Chapter X, page 204).

On the other hand, considerable discussion has arisen as to the diet in pleurisy with effusion—a discussion based on the assumption that a “dry” diet accompanied by free watery stools promotes absorption of fluid. Theoretically at least such a diet, or even one in which salt is restricted, may be indicated and may well be tried out in the individual case; but in every case of pleurisy with effusion a high caloric nourishing diet

must be employed. Otherwise we shall find to our regret that we have undermined the strength of the patient just at the time he needs it most.

BRONCHIAL ASTHMA

Bronchial asthma as distinct from the asthma of cardiac or renal disease, or that produced by thyroid or thymus pressure, is a disease very like hay fever; and within recent years a most interesting line of work has been opened tending to show that as hay fever represents a state of susceptibility to the proteins of certain plants, so asthma also represents a state of susceptibility to protein. In the case of asthma the proteins may be (a) inspired through the respiratory tract, (b) ingested through the gastro-intestinal tract, or (c) derived from the bacteria in a focus of infection anywhere in the body. The treatment of asthma then would demand that an attempt be made to discover the offending protein. The method to be pursued is, however, not always simple; especially if the offender belongs to the ingested proteins—the food stuffs. In Chapter XI, page 211, on diseases of the skin, we shall discuss the skin test by which protein sensitization can be discovered. If a particular food is found to be at fault the patient will frequently be freed of his asthmatic attacks merely by the elimination of that food from his diet. But in cases of asthma, as in other instances of food susceptibility, we should not rest content with merely finding a food to which the patient reacts. The presence of a focus of infection anywhere in the body

will often be the primary cause of protein susceptibility, and until the focus is cleaned out permanent results will not result from dietary changes.

But in not all cases of bronchial asthma can a definite cause be localized, and in all cases diet must be used which will aid the patient. Many asthmatics know certain foods which either produce or intensify their attacks, and all asthmatics have learned certain rules of eating. An asthmatic patient should not eat large meals, should beware of any food which produces intestinal gas and should have regular bowel movements. If the asthma has persisted, and is associated with a weakening of the heart muscle, special care must be exercised in feeding (see myocarditis, page 151). During an attack the food should be reduced to a minimum; between attacks the rules just laid down will suggest the following menu. Only light, easily digested foods should be taken. The heavy meal should always be taken at noon and the evening meal should be light and not too late in the day.

DIET FOR ASTHMA.

Breakfast: Stewed fruit, 1 or 2 eggs, cereal with cream, coffee, cream, toast and butter.

Dinner: Cream or meat soup, small serving of poultry or fish, beef or lamb, potatoes, one easily digested vegetable, as spinach, carrots, peas, etc., soft pudding or stewed fruit, milk or tea, bread or toast and butter.

Supper: Rice with cream, one soft cooked egg, stewed fruit, cocoa, bread or toast and butter.

TUBERCULOSIS

The manifestations of tuberculosis are varied indeed. One patient may have an acutely febrile, rapidly progressive disease, the next may have a slow, chronic infection with only minor symptoms requiring attention; or the disease may present a picture between these extremes. In all cases we should use every means in our power to increase the patient's resistance, and the means commonly employed have this object in view. We give the patient a combination of fresh air, sunlight, rest—physical and mental, and good food. Without a healthy surrounding food will not be of much avail, nor will it benefit a patient to send him "west to a warmer climate" unless we are sure that he will have good food when he gets there. The factors in a cure are potent for good only when grouped together, so that in the individual patient it is often necessary to emphasize one neglected factor in order to equalize all.

Although food does play such an important role in the cure of tuberculosis, we do not believe that the giving of proper food is equivalent to overfeeding. In fact, our experience with tuberculous patients leads us to believe that at least in some cases overfeeding is decidedly contra-indicated. The tuberculous patient requires strength rather than fat, and often the attempt to "put on flesh" adds such a burden to the digestive system as seriously to interfere with the proper healing of his tuberculous focus.

There are two elements in feeding (1) the state of nutrition, (2) the appetite and digestion. It is obvi-

ous that the strength to resist an infection is not possible with a man whose general system is undernourished, and it is equally obvious that a person whose appetite and digestion are impaired can not successfully assimilate food unless we assist his digestion by the proper choice of food substances.

We shall not discuss the feeding problem in institutions for the tuberculous, where the purely medical side is so closely bound with the problems of administration and of economics, but shall direct our efforts to the feeding of the tuberculous patient at his home or wherever his individual tastes and caprices can be learned and appealed to.

Speaking then entirely of the individual patient, our problem is to put him in a good state of nutrition, and if necessary improve appetite and digestion. These rules apply to all patients; with some undernourishment results from digestive disturbances, with others it may be due to a poorly selected diet. The acutely ill tuberculous patient with fever, and perhaps hemorrhages, will not eat the same food we would give to a man with a less virulent infection; but even the febrile patient should *as soon as possible* receive a high caloric diet. If his fever is high and he is at absolute (bed) rest, a diet such as we have already described as the "High Caloric Typhoid Diet" (see page 39) as a rule will be well assimilated. This would apply to the very sick patient at any stage of the disease.

The digestive disturbances and lack of appetite of the less severely ill will often disappear when his sur-

roundings are changed and he learns to "take life easy" and to live out-doors. But it may be necessary to supplement our diet instructions with information obtained by the stomach tube and analyses of the stool. If hypo or hyperacidity is present it must be taken into consideration and the diet modified to meet the actual conditions in the stomach. (See pages 168 and 169). If there is evident distress after certain foods, or if the examination of the stools shows deficiency of digestion of any particular food it is wise to withhold such foods from the diet. When constipation arises, the food must be considered from this standpoint (see page 179). Ordinarily speaking a well balanced *normal* diet (see page 36) is the best food we can prescribe for a tuberculous patient, provided attention is paid to the particular demands of the individual. When there is evident *under-nutrition* the patient should, of course, be built up to a normal weight, or even beyond his normal; but nothing is gained in the long run by overwhelming the tuberculous patient with food. As a rule three square meals a day, in which the proportions of protein, fat and carbohydrate are properly balanced, will give a patient all the nutrition he needs or can well use. As a means of filling a day's schedule and of relieving the routine of the "cure," small between-meal feedings may be used, but are by no means necessary.

We have for a long time had in actual practice the method of feeding just described. Our tuberculous patients, rich or poor, are told to eat without special regard to any particular food or class of foods, and

most seem to get along very well indeed. Of course, the patient whose gastro-intestinal canal requires attention receives special instruction; but as a rule such disturbances are minor and of short duration. It must be emphasized again that although under-nutrition must be combatted, mere addition of weight to a tuberculous patient does *not* necessarily mean an improvement in his lung condition, and should never be the ultimate goal of the treatment.

DIETS FOR TUBERCULOSIS.

I.

Breakfast: Grapefruit $\frac{1}{2}$, oatmeal 5 oz. with 2 oz. cream, 1 or 2 soft-boiled eggs, 2 slices bacon, 2 slices toast (50 gms.), butter $\frac{1}{2}$ oz., milk 6 oz., may be flavored with tea or coffee if desired.

Dinner: 4-6 oz. soup, $2\frac{1}{2}$ -3 oz. roast beef, 4-5 oz. mashed potatoes, 4-5 oz. spinach, 50 gms. lettuce salad with French dressing ($\frac{1}{2}$ oz. olive oil), 4-6 oz. custard, 6 oz. milk, bread $1\frac{1}{2}$ oz., butter $\frac{1}{2}$ oz., jelly $\frac{1}{2}$ oz.

Supper: 1 lamb chop, baked potato, French peas 4-5 oz., baked apple 4-5 oz., 6 oz. milk, $1\frac{1}{2}$ oz. bread, $\frac{1}{2}$ oz. butter.

Lunches: 10 A. M. 6 oz. fruit juice.

3 P. M. Egg nog (1 egg, 6 oz. milk).

8 P.M. 6 oz. milk.

Approximate Prot. 110 gms. Fat 140 gms. Carbo. 275 gms. Cal. 2800.

II.

Breakfast: Sliced oranges, 5 oz. farina with 2 oz. cream, 1 or 2 soft-boiled eggs, 2-3 oz. broiled ham, 1½ oz. toast, ½ oz. butter, 6-8 oz. milk.

Dinner: Cream of pea soup 4-6 oz., 3-4 oz. broiled steak, 4-5 oz. broiled potatoes, 4-5 oz. Brussels sprouts, 2-3 oz. tomato salad, 4-5 oz. ice cream, 6 oz. milk, 1½ oz. bread, ½ oz. butter.

Supper: 4-5 oz. broiled fish, baked sweet potato, 2-3 oz. vegetable salad with mayonnaise, stewed or fresh pineapple 4-5 oz., milk 6 oz., 1½ oz. bread, ½ oz. butter.

Lunches: 10 A. M. 6 oz. egg albumen.

3 P. M. Egg nog (1 egg and 6 oz. milk).

8 P. M. 6 oz. cocoa with crackers.

Approx. Prot. 130 gms. Fats 140 gms. Carbohydrates 250 gms. Cal. 2780.

But as tuberculosis is so commonly found among the poorer classes of people, we must also give a rational plan of feeding which will combine economy and dietetic value and will thus be practicable to many sufferers to whom the preceding examples of liberal diets for tuberculosis are inhibitive. Butterine or oelomargarine may be substituted for butter, lowering the economic but not the nutritive value of the food. Cornmeal, hominy, rice, macaroni and beans may be used liberally to raise the carbohydrate value of the

menu, and to take the place of green vegetables when out of season.

Breakfast: Stewed prunes 4-5 oz., oatmeal 4-5 oz. with 3-4 oz. milk, 1 egg (in season), 2 slices toast (2 oz.), milk 8 oz., butter or butterine $\frac{1}{2}$ oz.

Dinner: Cream of tomato soup 6 oz., 3-4 oz. beef stew, 4-5 oz. boiled potatoes, 5-6 oz. navy beans, 4-6 oz. tapioca pudding, 2 oz. bread, $\frac{1}{2}$ oz. butter or butterine, 6 oz. milk.

Supper: 3-4 oz. Swiss steak, baked potatoes (1 medium), macaroni with cheese 4-5 oz., stewed pears 4-5 oz., 6 oz. milk, 2 oz. bread, $\frac{1}{2}$ oz. butter or butterine.

Lunches: 10 A. M., 3 P. M. and 8 P. M., of 6 oz. of milk.

Prot. 130 gms. Fats 150 gms. Carbo. 260 gms.
Cal. 2910.

CHAPTER XI.

DISEASES OF THE SKIN

There are certain diseases of the skin which are caused by errors in diet and certain others which surely are influenced by food. Yet on the whole the dietary control of diseases of the skin cannot be said to be very satisfactory. At present, however, a considerable amount of research is going on which may have an important bearing in associating many skin diseases with disorders of nutrition. More diseases are constantly being considered from the viewpoint of individual susceptibility—sensitization—to some particular food-stuff, and in the study of such relations use is freely made of the skin reaction made familiar by von Pirquet. In the cases of foods, extracts of various suspected materials are made and the patient tested just as he would be tested for von Pirquet's tuberculin test; the person sensitive to a particular food will react just as a tuberculous patient will react to the von Pirquet test. Although much valuable information has already been derived from this line of work, especially in regard to urticaria and eczema, we do not feel that as yet far-fetching conclusions are justifiable.

Bulkley has pointed out various theoretical ways in which diet may influence skin disorders.

1. There may be a direct irritating action from the ingesta upon the stomach and intestine producing a reflex skin eruption, as in erythemas and urticaria from shellfish, strawberries, mush, etc.

2. Articles of diet may produce various forms of gastric and intestinal indigestion leading to the production of imperfectly elaborated material or to toxins which then have a direct irritating effect on the circulation through the capillaries, or on the skin during their elimination, as in acne from excessive indulgence in sweets, and some other affections from an excessive protein diet.

3. Possibly certain food elements may have an action directly on the skin in a manner similar to that of some drugs, as the iodides and bromides.

4. Errors in diet may consist in the absence of certain elements requisite for the proper and exact nutrition of the skin.

A good general rule to follow in the dietary treatment of skin diseases is this, "the more acute the dermatitis the more restricted the diet." This measure is in accord with the known medical law which demands putting an inflamed part at rest, and it is obvious that an inflamed skin, like the rest of the body, may obtain functional rest by cutting down the amount or changing the character of the food. An itching skin will not tolerate articles of diet such as alcohol or highly spiced foods which intensify itching and other inflammatory symptoms by increasing the blood supply to the already highly vascularized areas.

ECZEMA (Adult Type)

No absolute rule can be laid down regarding the diet in eczema. Each individual should be given the

quantity and quality of food necessary to nourish the body without interfering with digestion and elimination. Most patients with eczema eat an excess rather than an insufficient amount of food. It is well for eczematous individuals to avoid the beginning and the end of a meal. Soups do harm by diluting the gastric juice or by producing indigestion because of their fat content. The patient should avoid all fried foods, all highly seasoned food, "rich" food such as doughnuts, pastries and hot breads, food of high caloric value such as cheese, nuts, raisins, very sweet preserves, candies, soda water with heavy syrup. Coffee or tea may not be harmful, but water should be taken freely. Probably the fame of the various mineral springs in skin diseases is due not to the particular kind of water consumed but to the quantity that individuals frequenting these resorts feel it their duty to drink. In an eczema associated with glycosuria the usual diet for that condition should be instituted (see Chapter III). If in eczema the skin reaction already mentioned shows a definite susceptibility to one particular kind of food, that food should be entirely eliminated from the diet.

In some of the very acute and generalized eczemas met with good results can frequently be obtained by limiting the patients to a low caloric diet. Bulkley employs rice, bread and water and restricts the entire dietary to these foods until the acuteness subsides.

BULKLEY'S "RICE DIET."

Rice boiled in water for $\frac{1}{2}$ hour, then left uncovered to dry out for 15 or 20 minutes.

Fine white bread at least 24 hours old.

Butter is used freely, at least $\frac{1}{4}$ pound daily.

Water hot or cold (not iced) drunk separately from food.

All food is thoroughly masticated, giving $\frac{1}{2}$ hour to each meal. The rice is eaten with a fork. The diet is kept up 5 days for an acute eruption and is repeated or continued as necessary.

INFANTILE ECZEMA

The dietary treatment of infantile eczema has been a much disputed question, and at some time or other each of the four cardinal food constituents has been held to be at fault. The general opinion to-day is that eczematous children are over-fed, although occasionally even in properly fed individuals, adults as well as children, one sees an eczema produced or recur upon the ingestion of some particular article of food, as for example egg white, oatmeal or buckwheat flour. This reaction is undoubtedly anaphylactic in nature. It is surprising to see the excellent results accomplished by merely cutting down the quantity of food in eczematous infants. It is the general rule to diminish the quantity of all four food elements, although it has been recently advanced that one may have an infantile eczema due to excessive fat or one due to excessive sugar; the former being of the weep-

ing type, the latter dry. The diet then is the most important part of the treatment, and more stress should be laid on the diet than on the local care of the skin. The latter should be protective and non-irritating.

In the case of eczema occurring in nursing children the calories can be diminished by reducing the number and duration of feedings. In addition the administration of water sweetened with a little sugar, if necessary, before each feeding, will satisfy the child's hunger and yet by "spoiling his appetite" prevent the intake of too much milk.

As the child grows older broths and fruit juices which have a small food value can be given with the idea of satisfying the appetite without increasing the caloric value of the food. In still older patients coarse vegetables can be substituted for the rich cereals, butter, cream, jellies and cakes which these children usually eat in excess. As a rule, when a nursing child with eczema is put on a mixed diet, the eczema improves or even disappears. In many children the question resolves itself into the choice of food, as many of the patients are fed substances totally unfit for even the adult stomach. It is common experience to encounter eczema in children who have been fed such indigestible foods as sweet cakes, candy, or pastries, cabbage, bananas, pickles; and in these cases the eczema is likely to disappear when the offending food-stuffs are removed.

The nursing mother is often responsible for the eczema of her child. Excessive use of tea, chocolate,

beer or wine may so interfere with the mother's digestion and assimilation of foods as definitely to affect her milk supply. When such indiscretions are discovered prompt attention must be directed to the source of supply.

ACNE

The dietary care of the patients with acne (*vulgaris* and *rosacea*) is of considerable importance, although it cannot be said that dietary errors alone produce the disease. The majority of acne patients are constipated, are big eaters and with little or no tendency to exercise. It is therefore advisable to put these individuals on a coarse diet of a relatively low caloric value in addition to exercise and general hygiene. It is wise, in order to reduce food errors to a minimum, to ask the patient to carry a small note book in which he jots down each article eaten and any article that he may desire to eat. This book is inspected weekly and all necessary corrections made.

DIET FOR ACNE.

Milk, eggs, fat meats, butter, potatoes (in excess), bananas, tea, coffee, pastries, soups, alcohol, nuts, cheese, cocoa and chocolate, spices, condiments and all highly seasoned or concentrated foods are prohibited. Graham or bran bread is advised to be eaten at all meals.

A list of permissible foods follows.

Meats. Lean beef, lamb, fish, chicken.

Vegetables. Spinach, cabbage, cauliflower, Brussels sprouts, string beans, carrots, beets, peas, turnips, parsnips, corn, tomatoes, onions, lettuce, romaine, endive, radishes.

Fruits. Fresh and stewed, except bananas.

Cereals. All kinds in moderate amounts.

Beverages. Lemonade, orangeade, water, (sometimes coffee with cream).

Bread. All coarse breads, graham, bran, rye and wheat.

Breakfast: Fruit, wheat bread with an equal part of dry breakfast food and cream, Graham toast and honey, coffee and cream.

Luncheon: Cold meat (roast beef, veal, mutton or fowl), two coarse vegetables (beets, carrots, turnips, parsnips, sweet potatoes, cabbage, green beans or peas, sweet corn, radishes, tomatoes, lettuce, etc.), and stewed fruit.

Dinner: Meat (beefsteak, lamb chop, fish or fowl), two coarse vegetables, fruit salad, coffee or tea.

In acne rosacea one employs much the same scheme. In these cases, the harmful effect of alcohol is probably more apparent than in any other skin disease. In acne rosacea alcohol seems to exert its action especially on the circulation, and it is very common to see the red "whiskey nose" in alcoholics, although the excessive use of any other stimulant, as tea or coffee, can produce the same picture.

PSORIASIS

A vegetable diet has been recommended for many years for patients with psoriasis. In some cases one obtains results with such a regime, but the majority of psoriatics fail to respond to any special diet. We do know, however, that patients with psoriasis, especially the acute form, improve on a low protein diet, and Schamberg has shown a nitrogen retention which diminishes as the patient improves or recovers. Perhaps these individuals improve in the summer because of the restricted meat and protein diet during that season. Alcohol has been known to aggravate or start anew an attack of psoriasis. Coffee, cocoa, chocolate, because of their xanthin content, are harmful in psoriasis.

URTICARIA

Hives, which might well be called the "great tormentor" are so common as to warrant considerable attention. Unfortunately for the sufferer from hives, scientific knowledge of the condition is limited, as is evident from the numerous methods of cure and the chronicity of many cases. The acute attack of hives commonly follows some indiscretion in diet, and usually is quickly relieved by prompt emptying of the gastro-intestinal canal. Some persons can produce an attack at will by eating a particular article of food—one man cannot eat berries, another can produce hives by eating fish food, a third has an idiosyncrasy to some other article of diet.

Chronic urticaria may develop after an acute attack, but in by no means all cases can a definite article of food be discovered as the cause. It has seemed to us that perhaps medical men have gone too far in assuming a food insult as the cause of most cases of chronic urticaria; certainly in many cases we have over-emphasized the food element at the expense of the direct skin condition. This is an angio-neurosis—an effusion of serum through the skin capillaries, and the direct cause of the effusion is some instability in the minute nerves controlling the capillaries. Food often plays a primary role, but on the other hand the condition *can* occur apparently as a pure neurosis.

It is no small task to prove whether any particular food element is at the bottom of chronic urticaria, or what the particular food is. In some cases, as in acute urticaria, the patient knows that his hives appear when he eats fresh fruits or meat, and in such cases the cure is easy. The patient may be “tested out” by a dietary regime which, starting with purgation and starvation is gradually and carefully increased by the addition of one article of food at a time. Sometimes the offender may be caught in this manner, or it may be possible to vaccinate the patient with numerous foods. If he is “sensitive” to a particular food he will respond with a characteristic “wheal” at the site of the vaccination. Since it is difficult to procure material for vaccination from *all* kinds of food, this procedure will not always be successful.

As a routine practical procedure to detect a possible cause of hives we have usually first completely starved and purged our patient, giving nothing but water for one or two days. Milk is then given, often with buttermilk (Bulgarian Bacillus). Then bread, the various cereals, *first without sugar*; the various vegetables, fruits, meats, etc., are added always one at a time; but often despite such a course we have been unable to locate a definite food idiosyncrasy. In fact, we have seen patients do better on a *full unrestricted diet* than on a smaller fare, and in these cases it has seemed unwise to continue the tests. In some cases, however, we have found definite food causes, as fresh fruit or vegetables, animal protein in any form. In these cases it is good policy to attempt to find an even more remote pathological condition whose presence makes the food poisonous for the individual; this may be a disturbance in the gastro-intestinal canal or even an infection in some other part of the body. From our experience with food idiosyncrasies of various sorts we firmly believe that such an apparent idiosyncrasy may be only a *secondary* metabolic expression. This idiosyncrasy will be manifest until the primary cause is discovered and removed.

FURUNCULOSIS

In furunculosis an excess of sugar may be found in the blood. This conforms to our clinical observation that furuncles are common in individuals who overeat carbohydrates. It is therefore advisable to limit

the ingestion of sugars and starches in such patients; the "carbohydrate-free diets," given in Chapter III, will be found useful. In many patients who resist ordinary therapeutic methods resort to such a diet will be followed by an immediate cure.



CHAPTER XII.

FEVERS

We can hardly talk about feeding in fevers unless we modify our remarks to suit the special case. Fever is usually the result of an infection, and both the fever and the poisoning of an infection increase the body metabolism. In some cases where the disease is of short duration, this increased metabolism and the resulting loss of body weight are not of as great importance to the patient as are other considerations; for example, pneumonia is usually a disease of such short duration and uncomplicated convalescence that we need not fear the temporary loss of weight which might result from a diet used to spare the heart. On the other hand, typhoid fever is a long and tedious drain on the patient who needs to conserve all his energy if he is successfully to overcome the infection and pass through convalescence without relapse. In typhoid fever, one of the most important elements in treatment should be a deliberate attempt to maintain nutrition, but in pneumonia this is of minor importance as compared to the danger of cardiac insufficiency, or even of meteorism—intestinal putrefaction and gas. In other fevers, too, special stress is laid on other features, as for example scarlet fever, where the diet and all treatment must always have in view the danger of its most serious complication—nephritis.

It seems evident, then, that there can be no definite diet for fever, no set of rules to govern all cases. In the acute infections of short duration often one of the most marked symptoms is loss of appetite, and in such cases it is obviously unwise to try to force food. The use of liquid foods in these cases has the double advantage of being usually more easily assimilated and digested than solids and of furnishing a larger amount of water. Some patients show a peculiar capriciousness of appetite during fever, and it is probably true that no harm will arise if the demand for strange foods be answered. In fact, generally speaking, the appetite and desires of the patient must be considered even when fluids alone are employed, and the comfort and well-being of the patient more often depend on the art of the cook than on the orders of the physician.

It is not always easy to furnish a suitable fluid diet, which is especially true when for some reason milk is not well borne. When milk is part of the diet it, of course, forms the basis of any fluid regime; but it rarely can be used extensively for any period of time without variations. Milk can be used in so many different ways, pleasing to a patient who dislikes it pure, that we have collected in this chapter many recipes, some of which are sure to prove satisfactory. The various modifications of milk now extensively used in the sick room, as, for example, malted milk or buttermilk, also furnish excellent material for a fluid diet. Raw eggs, either whole or merely the albumen, can be served alone or combined with various drinks;

stock soups and meat extracts, while of little value as fuel, have considerable value as stimulators of appetite and for their water content.

Alcoholic beverages are rarely necessary as food, except when the patient has been a heavy drinker. Occasionally champagne will be of value when nothing else is retained by the stomach, and enough brandy, whiskey or sherry to flavor a milk drink will often stimulate an otherwise sluggish appetite. There are times when alcohol is necessary as a stimulant—in which cases it is given not as a food but as medicine. Tea or coffee are used at the discretion of the physician. Fruit juices and the “soft” drinks are useful adjuncts to a liquid diet and will help considerably in adding variety.

The class of cases for which such a liquid diet is suitable are the acute uncomplicated fevers of short duration. In this group we include the acute infections of the upper air passages—tonsilitis, “cold in the head,” influenza, bronchitis, pneumonia; some of the more acute “contagious diseases,” as for example—measles, mumps, meningitis, diphtheria, erysipelas, etc. Acute articular rheumatism in its earlier stages may also be classified in this heading.

If a liquid diet is ordered, it is well to plan a diet on a two-hour schedule, and, as already mentioned, especial attention should be paid to the requirements of the individual appetite. Certainly care in selecting some of the appended preparations will be gratefully appreciated by the patient.

FLUID DIET.

I.

- 6 *A. M.* Hot cocoa 6 oz.
- 8 *A. M.* Oatmeal gruel 4 oz., 2 oz. cream.
- 10 *A. M.* Milk 4 oz., 2 oz. cream.
- 12 *M.* Hot malted milk 6 oz.
- 2 *P. M.* Orange eggnog 6 oz.
- 4 *P. M.* Milk 4 oz.-2 oz. cream.
- 6 *P. M.* Egg-broth 6 oz.
- 8 *P. M.* Hot cocoa 6 oz.

If night feedings are given, milk and cream feedings as given above may be used at 12 P. M. and 4 A. M.

Approximately 2,000 calories.

II.

- 6 *A. M.* Milk 4 oz., cream 2 oz.
- 8 *A. M.* Malted milk cocoa 6 oz.
- 10 *A. M.* Egg-nog 6 oz.
- 12 *M.* Egg-broth 6 oz.
- 2 *P. M.* Milk 4 oz., 2 oz. cream.
- 4 *P. M.* Albuminized milk 6 oz.
- 6 *P. M.* Malted milk chocolate 6 oz.
- 8 *P. M.* Egg-broth 6 oz.

If patient is awake during the night feedings of milk and cream, the same as those given at 2 P. M., may be given at 12 P. M. and 4 A. M., or 6 oz. of good chicken or beef broth, as desired.

Approximately 2200 calories.

III.

- | | | |
|------------------------------|-----------------------------------|---------------------------|
| 6 A. M. | Chicken broth 6 oz., 1 whole egg. | |
| 8 A. M. | Milk 4 oz., 2 oz. cream. | |
| 10 A. M. | Lemon whey 6 oz. | |
| 12 M. | Malted milk chocolate 4 oz. | |
| 2 P. M. | Egg-nog 6 oz. | 1 egg,
4 oz. milk. |
| 4 P. M. | Broth 6 oz. | |
| 6 P. M. | Milk 4 oz., cream 2 oz. | |
| 8 P. M. | Hot chocolate 6 oz. | |
| 12 P. M. | Milk 4 oz., 2 oz. cream. | } If patient
is awake. |
| 4 A. M. | Broth 6 oz. | |
| Approximately 1500 calories. | | |

IV.

- 6 A. M. Broth 6 oz., 1 whole egg.
8 A. M. Hot malted milk 6 oz.
10 A. M. Egg-nog 6 oz.
12 M. Cream soup 4 oz.,
Cocoa 4 oz.
2 P. M. Orangeade 6 oz.
4 P. M. Milk 4 oz., cream 2 oz.
6 P. M. Egg-broth 6 oz.
8 P. M. Cocoa 6 oz.
12 P. M. Milk 4 oz., cream 2 oz. } If patient
4 A. M. Milk 4 oz., cream 2 oz. } is awake.
- Approximately 1800 calories.

FLUID DIET FOR PATIENTS UNABLE TO TAKE MILK.

- 6 A. M. Hot malted milk 6 oz., with 10 grams lactose (made with water only).
8 A. M. Oatmeal gruel 4 oz., 10 grams lactose.
10 A. M. Orangeade with 20 grams lactose.
12 M. Egg broth—1 egg and 6 oz. broth.
2 P. M. Fruit gelatin 6 oz.
4 P. M. Albuminized water 6 oz.
6 P. M. Egg broth 6 oz.
8 P. M. Hot malted milk 6 oz.
12 P. M. Plain broth 6 oz.
4 A. M. Malted milk 6 oz., with 10 grams lactose.
Approximately 1000 calories.

RECIPES FOR FLUIDS.

Breakfast Cocoa.

2 teaspoons cocoa, 1½ teaspoons sugar, ½ cup boiling water, ½ cup milk.

Scald milk in double boiler; mix sugar, cocoa, and boiling water, stirring constantly, and boil three minutes. Add this to the scalded milk, beating well. One tablespoon of whipped cream may be added if desired.

Chocolate.

1 tablespoon grated chocolate, 1 tablespoon sugar, ¼ cup boiling water, ¾ cup scalded milk.

Melt chocolate in pan placed over hot water. Add sugar, then boiling water and boil one minute. Scald milk in double boiler and add first

mixture to it. Serve plain or with whipped cream, either hot or cold.

Egg-Nog.

1 egg, 1 tablespoon sherry or brandy, 2 teaspoons sugar, 6 oz. cold milk.

Beat egg yolk lightly. Add milk, sugar and sherry. Beat egg white stiffly and add last. Serve cold. $\frac{1}{4}$ teaspoon of vanilla or a little grated nutmeg may be substituted for the liquor, if desired.

Egg Broth.

3 oz. chicken broth, 3 oz. milk or thin cream, 1 egg.

Heat milk and broth and remove from fire and add well beaten egg slowly. Season with salt to suit taste.

Albumen Milk.

1 egg white, 4 oz. milk (1 teaspoon sugar), few grains of salt.

Beat egg white until very light. Add milk and sugar (if wished) and salt, stirring constantly. Serve cold. Many patients will not want sugar, so it is usually omitted.

Milk Punch.

6 oz. cold milk, 2 teaspoons sugar (1 tablespoon sherry or brandy).

Put ingredients into a shaker and shake until frothy. Serve with 1-2 tablespoons of crushed ice.

Lemon Whey.

1 cup scalded milk, 2 teaspoons sugar, 2 table-
spoons lemon juice.

Heat milk in double boiler, add lemon juice
and cook until the whey separates. Remove from
fire and strain through cheesecloth. Add sugar
and serve with crushed ice.

Milk and Ginger Ale.

3 oz. milk, 3 oz. ginger ale.

Mix or shake together well and serve cold.

Koumiss.

1 pint milk, 1 tablespoon sugar, $\frac{1}{2}$ cake com-
pressed yeast, $\frac{1}{2}$ tablespoon lukewarm water.

Heat milk to 70-80° F. Add sugar and yeast
dissolved in lukewarm water. Bottle, leaving a
couple of inches from top empty and shake well.
Let stand in room temperature for 10 to 12
hours; then put in ice box and let stand 24 to 48
hours, shaking occasionally.

Rice Milk.

$\frac{1}{2}$ oz. rice, 1 teaspoon sugar, 1 cup scalded milk,
few grains of salt.

Wash rice carefully, then soak over night.
Drain and add the scalded milk, sugar and salt.
Cook one hour and strain through fine strainer.
Serve hot.

Bulgarian Milk.

1 pint whole milk, 1 Fairchild's Bulgarian Bacil-
lus tablet.

Add tablet and let milk stand in room temperature 24-36 hours, until it is well clabbered. Beat with a wire whip until well mixed. Set in ice box. This will keep good for several days, if kept cold.

Hot Malted Milk.

1 tablespoonful Horlick's Malted Milk, 6 oz. boiling water, 3 to 4 drops of vanilla, 1 teaspoon sugar.

Mix malted milk well with a little water first, then add the rest of water, beating briskly. Add vanilla and serve hot. If allowed or desired, one tablespoon of cream may be added to the preparation.

If patient can take milk, 3 oz. of milk and 3 oz. of water may be used instead of *all* water.

Malted Milk Chocolate or Cocoa.

1 tablespoonful malted milk (Horlick's), 1 teaspoonful powdered chocolate, or cocoa, 1 teaspoon sugar, 6 oz. boiling water or hot milk.

Mix malted milk, sugar, chocolate, stirring well. Boil 1 to 3 minutes. Add 2 to 3 drops of vanilla if desired. Sugar may be omitted if not wanted.

Malted Milk Egg-Nog.

1 egg, 1 tablespoon sherry wine, 1 teaspoon sugar, 1-2 tablespoons malted milk (Horlick's), 6 oz. milk or water.

Put malted milk into a shaker. Add egg, wine, sugar and milk or water, and shake thoroughly.

Vanilla may be substituted for sherry, if desired, using 4 to 5 drops of vanilla; 1 tablespoon of melted chocolate or cocoa stock may be added to vary the drink.

Malted Milk Shake.

2 tablespoons malted milk (Horlick's), 6 oz. milk, 4 to 5 drops of vanilla, sugar to taste.

Put into shaker and shake thoroughly with one or two tablespoons of crushed ice. Serve cold.

Malted Milk Coffee.

1 tablespoon Horlick's malted milk, 1 tablespoon ground coffee, 6 oz. boiling water, sugar to taste.

Mix malted milk, coffee and water. Boil 3 minutes. Let stand a few minutes in a warm place to settle, then drain from the grounds. A little sweet cream or whipped cream may be added when served, if desired.

Malted Milk Ice Cream.

2 tablespoons malted milk (Horlick's), 1-2 tablespoons sugar, 1 cup boiling water, $\frac{1}{2}$ egg white, 2 oz. cream, 6-8 drops of vanilla. (Chocolate, 2 tablespoons).

Mix malted milk, sugar and boiling water, stirring until dissolved. Add cream and cook 1 to 3 minutes (if chocolate is used). Add egg white stiffly beaten and vanilla, and freeze.

Orange Egg-Nog.

1 egg, 2 teaspoons sugar, juice of 1 orange, 1 tablespoon lemon juice.

Beat egg white until stiff, add 1 teaspoon sugar and half of orange juice. Add rest of sugar and fruit juice to egg yolk and beat until thick. Blend two mixtures slowly and serve with crushed ice.

(Pineapple juice may be substituted for orange and lemon juice, 2 tablespoons being sufficient, or 4 to 6 oz. of coffee.)

Orangeade.

Juice of 1 orange, 1 tablespoon lemon juice, 2 teaspoons sugar, 6 oz. cold water.

Mix ingredients thoroughly and serve cold.

Lemonade.

1 lemon, 6 oz. water, 2 tablespoons sugar.

Make a syrup of sugar and water. Let stand until cool and add lemon juice. Serve cold.

If hot lemonade is desired, pour boiling water over sugar, add fruit juice and serve at once.

Egg Lemonade.

1 egg, 2 tablespoons lemon juice, 2 tablespoons sugar, 6 oz. cold water.

Beat egg well. Add sugar and fruit juice, then add water slowly. Strain and serve cold.

Fruit-Ade.

2 tablespoons orange juice, 1 tablespoon lemon juice, 2 tablespoons pineapple juice, 1 tablespoon sugar, 4 oz. water.

Dissolve sugar in two ounces of boiling water. Add fruit juices and rest of water, and serve with crushed ice.

Some physicians never consider it necessary to limit a diet strictly to fluids, and from the beginning of an acute infection they allow the addition of "soft" articles of food, as, for example, strained cereals, vegetable purees, soft toast (milk or broth), stewed fruits, mashed potato, gelatines, etc. Whether one agrees with this practice or not, it is certainly true that as soon as the acute process is over additions such as these to the diet should be made as quickly as the patient's appetite allows. A "soft" diet would embrace the fluids already discussed and any of the following articles:

Milk toast, soft eggs, custards and other soft milk puddings, ices and ice creams, strained vegetables and fruits, mashed potato, strained cereals, butter.

SOFT DIET.

(Approximate Value: 2500-2600 Calories.)

6 *A. M.* Milk 6 oz. with 1 oz. cream.

8 *A. M.* Breakfast:

Strained apple sauce 100 grams, oatmeal
gruel 100 grams with 2 oz. cream, 1
soft-cooked egg, cocoa 6 oz.

10 *A. M.* Gelatin or fruit juice 6 oz.

12 *M.* Dinner:

Cream soup 4 oz., mashed potatoes 100
grams, strained peas 100 grams, 1
slice toast (moistened), $\frac{1}{3}$ oz. butter,
cocoa 6 oz.

3 P. M. Egg-nog, 1 egg and 5 oz. milk.

6 P. M. Supper:

Strained cereal 100 grams with 2 oz. cream, 1 soft-cooked egg, 1 slice toast (moistened), $\frac{1}{3}$ oz. butter, cocoa 2 oz.

8 P. M. Hot malted milk 6 oz.

12 P. M. and 4 A. M.

Milk 6 oz. with 1 oz. cream if patient is awake.

As convalescence is established and the patient approaches the normal, the diet is gradually or rapidly increased, depending entirely on the general welfare and appetite of the individual. At the close of any *uncomplicated* infection it can be said that a normal full diet cannot be reached too quickly. In influenza, for example, the drop in temperature to normal usually means the end of the disease, but the patient is apt to be more profoundly weakened than he realizes, and his diet should be increased rapidly. After the crisis in pneumonia complications usually are not encountered unless it be empyema; but the severe cardiac strain prevents too rapid an increase in food. As we have already said, the details of increasing food must be established for the individual case; but as an example of the general method we usually employ we shall now cite the diet we usually employ with our pneumonia patients:

CONVALESCENT DIET FOR PNEUMONIA.

Following Fluid Diets previously given.

(After crisis is passed.)

I.

Breakfast: Strained cereal 3-4 oz. with 2 oz. cream, cocoa 4-6 oz., 1 soft-cooked egg.

10 A. M. Fruit juice 6 oz.

Dinner: Cream soup 4 oz., custard 4 oz., milk 4-6 oz.

3 P. M. Egg-nog (1 egg and 6 oz. milk).

Supper: Strained rice 3-4 oz. with 2 oz. cream, 1 soft-cooked egg, apple sauce 3-4 oz., cocoa or malted milk 6 oz.

8 P. M. Milk 6 oz. with graham crackers.

II.

Breakfast: Strained fruit 3-4 oz., strained cereal 3-4 oz. with 2 oz. cream, 1 soft-cooked egg, cocoa, 6 oz.

10 A. M. Broth with crackers.

Dinner: Cream soup 4 oz., mashed potatoes 2 oz., gelatin 4 oz., cocoa or milk 6 oz.

3 P. M. Egg-nog (1 egg and 6 oz. milk).

Supper: Strained cereal 3-4 oz. with 2 oz. cream, 1 soft-cooked egg, strained fruit 3-4 oz., cocoa 6 oz.

8 P. M. Hot malted milk 6 oz.

III.

Breakfast: Stewed fruit 3-4 oz., 1 soft-cooked egg, cereal 3-4 oz. with 2 oz. cream, cocoa 6 oz., 1 slice toast with butter.

10 A. M. Orangeade 6 oz.

Dinner: Cream soup 4 oz., mashed potatoes 2-3 oz., spinach puree 2-3 oz., soft pudding 4 oz., cocoa 6 oz., 1 slice toast, butter.

3 P. M. Milk 6 oz.

Supper: Rice 2-3 oz. with 2 oz. cream, 1 soft-cooked egg, stewed fruit, cocoa 6 oz., 1 slice toast with butter.

IV.

Breakfast: Stewed fruit 3-4 oz., 1 soft-cooked egg, cereal 3-4 oz. with 2 oz. cream, cocoa 6 oz., 1 slice toast and butter.

10 A. M. Gelatin 4-6 oz.

Dinner: Cream soup 4 oz., scraped beef 2 oz., mashed potatoes 2-3 oz., French peas 2-3 oz., soft pudding, cocoa or tea, 1 slice toast with butter.

3 P. M. Milk 6 oz.

Supper: Cereal 3-4 oz. with 2 oz. cream, small baked potato, 1 soft-cooked egg, stewed fruit 3-4 oz., cocoa or tea, 1 slice toast with butter.

V.

Breakfast: Same as IV, plus bacon well-cooked.

10 A. M. Fruit juice 6 oz. or milk 6 oz. or broth and crackers.

Dinner: Same as IV.

3 P. M. Milk 6 oz. or egg-nog or custard 4 oz.

Supper: Same as IV.

If milk is well borne it should form the major part of the diet during the acute stage of the disease. Plenty of water should be given also and acid beverages are very valuable during the severe stage.

As frequent feedings are necessary, 4 to 6 ounces of milk may be given every 2 or 3 hours. Gradually, as the fever abates, semi-solid food may be added to the diet. In some cases we have had very good success in feeding the high caloric diet which we use for typhoid fever. Then the return to a full diet is similar also. If milk is not well borne, broths, whey, malted milk, egg albumin and liquid beef preparations must be used. Starches and sugars are not well borne usually, and so are best omitted from the diet.

TYPHOID FEVER

At present the standard diet for typhoid fever patients is a so-called "high caloric" diet. The adoption of this type of diet is based primarily on the facts (1) that the long continued fever and intoxication of the infection increase metabolism and reduce weight by burning of body fat and protein, (2) this loss of weight and strength lowers the resistance of the patient, and (3) to a great extent it can be prevented by proper diet. The food should, of course, be easily digested and assimilated, and should contain no coarse residue which entering the intestine might irritate or even rupture the ulcers constantly present in this disease. The older method of feeding milk or milk and albumen water was based on the idea that solid food would in-

crease the fever and would be more dangerous to the inflamed intestine than was milk; but it is true that milk entering the stomach a liquid may enter the intestine a curdled, solid mass, whereas a mashed potato or a dish of gelatine may be liquified by the time the inflamed intestine is reached. Practical tests at the bedside have now shown conclusively that we need not fear complications when we feed our typhoid patients liberally, but that on the other hand complications are less likely to occur, convalescence is shortened, and the patient recovers from the disease more nearly like a human being than a starved skeleton.

It is, however, often difficult to make the typhoid fever patient take his food, and all sorts of dietary artifices may be necessary to suit his appetite and his digestion. Frequent feeding of small amounts is more likely to succeed than trying to give a few large meals, and for that reason the patient should be given something every two hours; although we do not believe it a wise practice to disturb his slumber at night for food unless we cannot get him to eat during the day. Especially in the beginning of the disease it is often difficult to force the patient to eat, and yet this is the most important time to establish his schedule, for if the patient acquires the habit early it is much simpler to continue later when food is needed.

We have used the following high caloric diets in the Michael Reese Hospital with good success. The patients on the whole have taken the food well, and when

the fever subsided they were well nourished and convalesced very rapidly.

HIGH CALORIC DIET—TYPHOID FEVER.

6 A. M.	Milk 4 oz. with cream 2 oz.....	195	calories
8 A. M.	Strained gruel, cream 2½ oz. 100 gms....	175	"
	1 soft cooked egg.....	60	"
	Toast 1 slice, well moistened.....	73	"
	Butter 10 gms.....	72	"
	Cocoa 6 oz.....	155	"
10 A. M.	Milk 4 oz. with cream 2 oz.....	195	"
12 M.	Cream soup 200 cc.....	250	"
	Toast 1 slice.....	73	"
	Butter 10 gms.....	72	"
	Gelatine 60 gms.....	40	"
	Cocoa 6 oz.....	155	"
2 P. M.	Egg-nog 1 egg, 4 oz. milk.....	195	"
4 P. M.	Junket or soft pudding 4 oz.....	130	"
6 P. M.	Strained gruel, cream 2 oz. 100 gms....	175	"
	Toast 1 slice.....	73	"
	Butter 10 gms.....	72	"
	1 soft cooked egg.....	60	"
	Custard 60 gms.....	80	"
	Cocoa 6 oz.....	155	"
8 P. M.	Milk 4 oz. with cream 2 oz.....	195	"
12 P. M.	Strained gruel 100 gms., cream 2½ oz....	175	"
	Milk 4 oz. with cream 2 oz.....	195	"
4 A. M.	Milk 4 oz., with cream 2 oz.....	195	"
Daily Total		3180	"

High Caloric Fever Diet, Child, 12 Years of Age.

4 A. M.	Milk 3 oz. with cream 1 oz.....	116	calories
6 A. M.	Milk 3 oz. with cream 1 oz.....	116	"
8 A. M.	Strained gruel 2 oz. with cream 1 oz....	90	"
	1 soft cooked egg.....	60	"
	1 slice toast, well moistened.....	73	"
	10 gms. butter.....	72	"
	Cocoa 4 oz.....	104	"
10 A. M.	Milk 3 oz. with cream 1 oz.....	116	"

12 M.	Cream soup 4 oz.....	160	calories
	1 slice toast.....	73	"
	10 gms. butter.....	72	"
	Cocoa 4 oz.....	104	"
2 P. M.	Egg-nog, 1 egg with 3 oz. milk.....	116	"
4 P. M.	Junket or soft pudding 3 oz.....	105	"
6 P. M.	Strained gruel 2 oz. with cream 1 oz....	90	"
	1 soft cooked egg.....	60	"
	1 slice toast, well moistened.....	73	"
	10 gms. custard.....	80	"
	10 gms. butter.....	72	"
	Cocoa 4 oz.....	104	"
8 P. M.	Milk 3 oz. with cream 1 oz.....	116	"
12 P. M.	Milk 3 oz. with cream 1 oz.....	116	"
	Strained gruel 2 oz. with cream 1 oz....	90	"

As this diet is liberal, we increase the diet very slowly during convalescence. A little apple sauce is added with the breakfast, no other change being made for a few days. Then we add a small amount of strained mashed potato to the noon meal. Strained peas or some other light vegetable is next added, and lastly a small amount of minced chicken; within a few days scraped beef or minced fish are alternated with the chicken to afford a variety. We very often give the patient a gastro-intestinal diet (see page 169) before giving more solid food, then very gradually change the diet so that he receives stewed fruit and vegetables without straining. Raw food should be avoided for weeks and sometimes months after the patient is able to leave the hospital.

Some physicians still use milk almost entirely through the acute stage of typhoid fever, so we give Coleman's Milk, Cream and Lactose Diets as examples of the fluid diet.

FLUID DIETS (Coleman).

For 1000 calories daily:

1 qt. milk.....	700	calories
50 cc. cream.....	100	"
50 grams lactose.....	200	"

To be given in 8 feedings.

For 1500 calories daily:

1½ qts. milk.....	1000	calories
50 cc. cream.....	100	"
100 grams lactose.....	400	"

To be given in 6 feedings.

For 2000 calories daily:

1½ qts. milk.....	1000	calories
240 cc. cream (8 oz.).....	500	"
120 grams lactose (4 oz.).....	500	"

To be given in 7 feedings.

For 2500 calories daily:

1½ qts. milk.....	1000	calories
240 cc. cream.....	500	"
240 grams lactose	1000	"

To be given in 7 feedings.

For 3000 calories daily:

1½ qts. milk.....	1000	calories
480 cc. cream (1 pt.).....	1000	"
240 cc. lactose (8 oz.).....	1000	"

To be given in 8 feedings.

For 3900 calories daily:

1½ qts. milk.....	1000	calories
480 cc. cream.....	1000	"
480 grams lactose (16 oz.).....	1900	"

To be given in 8 feedings.

SCARLET FEVER

A special word is necessary concerning scarlet fever, because, as we have already stated, in scarlet we always fear and must try to prevent the onset of nephritis. On account of the fear of this serious complication, milk for years has been the accepted food for patients with this disease, but in more recent times careful comparative studies of parallel series of patients have shown that a more liberal diet does not increase the incidence of nephritis. It seems to us, however, that some caution should be exercised and that the patient should be guarded, and at least during the height of the fever milk should form the main article of food. If the patient is not too sick the addition of some soft foods of the farinaceous type, or stewed fruits, or of vegetable purees can not possibly do harm and can be given from the beginning. As soon as the fever subsides the patient should receive enough food to maintain nutrition, but despite the investigations quoted above we believe it wise to refrain from excessive use of protein or of salt. Although protein and salt may not be potentially dangerous, yet it is better to err on the side of caution, especially since enough calories can easily be supplied without protein.

A diet scheme on this basis would not be difficult to construct: reference to the lists already given in this chapter will supply the information needed.

"RHEUMATISM"

"Rheumatism" is a word which by itself has no place in the literature of medicine; we use it here simply

as a convenient handle for a group of diseases commonly and erroneously classed together, and we use it mainly to show the error of this grouping. For this word as too often employed is made to embrace everything or anything which causes pain in the muscles or joints. Excepting gout, which has been discussed, there is nothing in the course of rheumatic troubles which suggests metabolic disturbances. The acute arthritis cases should be treated as ordinary acute fevers (see page 225); the chronic joint disturbances should receive as much good nourishing food as possible, just as other chronic infectious diseases are fed up in the effort to increase resistance. The so-called muscular rheumatism is usually the result of an inflammatory reaction in the muscles to some absorbed toxin, and diet can have little, if any, effect on its course.

CHAPTER XIII.

OBESITY

The dietary problem of most general popular interest is the one associated with obesity. Every fat person wants to grow thin, but few are willing to *work* toward that end or to make sacrifices to do so. There are patients whom one wants to reduce for definite medical reasons, but most persons who diet for obesity have a pure cosmetic motive. The problem of why some persons are stout and others thin is as yet unsolved; we know of course that a tendency to obesity or to thinness may run in families, but we do not know the basic reason for this tendency. We call this an hereditary constitutional tendency, which in terms of metabolism means nothing. Not all stout persons are by any means heavy eaters, and not all heavy eaters are stout; but despite this apparent fact obesity arises from a disproportion between the amount of food taken and the amount actually burned by the body. A woman approaching her menopause may put on fat although she does not change her diet in any way; and in this case there is probably a diminished use of food because of deep chemical changes resulting from the diminished ovarian secretion. On the other hand the athlete at the training table eating a carefully selected diet and taking plenty of exercise will stay "fit," but allow him to stop exercise and to eat more freely and he will "put on flesh." In the

case of the woman at the menopause there is no change in food intake, and the obesity results from a disturbance of body metabolism: in the case of the athlete, increased weight results from a combination of two factors (1) increased food and (2) diminished energy. On the other hand a man who all of his life has been accustomed to a sparse diet, but who suddenly becomes prosperous and eats accordingly is very likely to grow fat merely because he increases his food supply, without correspondingly increasing his energy.

So then the causes of obesity may be summarized in brief as follows: (1) a constitutional tendency, (2) overeating, (3) diminished expense of energy, (4) a combination of 2 and 3.

It is not always easy to prove that an obese person belongs to one of the groups 2, 3 or 4. Many men and women really think they do not overeat and do take enough exercise, and when asked to put on paper the exact amount of food they consume, the exercise they take, the alcohol they drink, and the amount of sleep they indulge in are greatly surprised at the physician's proof of their over-eating. This attitude is of course not an attempt to deceive, but is merely the result of ignorance of food values. If careful inquiry into the details of ordinary life be made in all obese patients, many, apparently constitutionally fat, will prove to be obese because of a disproportion between food intake and energy consumed.

In all cases the principle of the cure will be the

same, but the application will have to vary for the individual patient. The foods from which fat is most easily made are the carbohydrates and the fats, the main ingredients of those foods which stout persons enjoy most. The fundamental concept in treatment then will be the reduction of the amount of carbohydrates and fats in the diet. But it is not sufficient to tell a fat person merely to restrain from fat-forming foods; other foods must be provided to take their place. In those cases where an evident excess of sweets such as candy, pastry or ice-cream is the cause of the trouble, and where the aim of treatment is merely to prevent further increase in weight, it is often necessary merely to remove the noxious sweets from the diet. In most cases, however, excessive detail must be provided. It is not sufficient to tell a patient to eat much protein and many vegetables; you have to write out his menus for him. The success of a certain popular method of achieving thinness is due to the fact that diets are printed; the patient does not have to devote any energy to figuring out what he may or may not eat; he is told from day to day and week to week *what to eat*, and he is urged to follow the menus without change—except perhaps of taste.

There are many cures for obesity, most of which are given at the end of this chapter. Most of them are too strenuous for ordinary usage, and some are not without potential harm. It is our practice in handling such cases to employ the following method:

- I. Get a detailed diary of the patient's life.

II. Examine patient.

III. Using this as a basis for correction, prescribe (a) the amount of sleep; (b) the amount of exercise; (c) the diet. In figuring out the diet we (1) diminish the total caloric intake; (2) diminish intake of fats and carbohydrates to a minimum compatible with the health of the individual and his occupation; (3) control the water intake.

Speaking of the last element first, we do not feel that excessive restriction of fluids helps greatly in all cases, but occasionally water restriction is found necessary. Drinking at meals, being a bad habit at best, is not allowed, but the more recent studies clearly show that only in certain exceptional cases does water intake really influence metabolism.

In giving the various known "obesity cures" we wish again to emphasize that indiscriminate dieting for obesity is a procedure not entirely devoid of danger. We do not believe that any person should undertake treatment except under the advice and care of a physician. With proper guidance good results can be obtained without the harm which may result from too excessive employment of inanition. A cure which reduces slowly is better, safer, and more permanent than any radical one.

BANTING DIET.

9 A. M. *Breakfast.*

5-6 oz. animal food, meat or boiled fish.
(No pork or veal.)

A small biscuit or 1 oz. dry toast. Total solids 6-7 oz.

Coffee or tea (no milk or sugar) 9 oz.

2 P. M. *Dinner.*

Fish or meat 5-6 oz. (No salmon, eels, herring, pork or veal.) Poultry or game.

Any vegetables except potato, parsnips, beet roots, carrots or turnips.

Cooked unsweetened fruit.

Good Claret, Sherry or Madeira—10 oz.

Total solids 10-12 oz.

6 P. M. *Tea.*

Cooked fruit 2-3 oz., a rusk or two, 2-4 oz. solids.

9 oz. tea (no milk or sugar).

9 P. M. *Supper.*

Meat or fish as at dinner 3-4 oz.

Claret, Sherry or water 7 oz.

Total solids daily 21-27 oz. Total fluids 35 oz.

Protein 172 gms. Carbohydrates 81 gms. Fat 8 gms. Cal. 1100.

OERTEL'S DIET.

First Breakfast: 1¼ oz. white bread, a large tea-cupful of coffee with 1 oz. milk and 1 lump of sugar, and (in some cases) ½ oz. of butter.

Second Breakfast: 2 oz. lean meat, ¾ oz. coarse bread, 3½ oz. light wine or soup.

Dinner: $5\frac{1}{4}$ oz. of roast beef with salad or green vegetables, $3\frac{1}{2}$ oz. of pudding and fruit, a tumblerful light wine and (in some cases) 1 oz. of bread.

Afternoon: A small cup of coffee as at breakfast.

Supper: $\frac{1}{2}$ oz. of caviar, $5\frac{1}{4}$ oz. of chicken or game, $\frac{1}{2}$ oz. of cheese, $\frac{3}{4}$ oz. of coarse bread, a tumblerful of water or light wine.

Prot. 170. Fat 45. Carbo. 120. Cal. 1600.

Prot. 156. Fat 25. Carbo. 75. Cal. 1180.

EBSTEIN'S DIET.

Breakfast: Large cup of tea (no milk or sugar), 2 oz. of bread with plenty of butter.

Dinner: Soup, $4\frac{1}{2}$ to $5\frac{1}{2}$ oz. meat with fat sauce, green vegetables, fresh fruit, 2-3 glasses of light wine.

Afternoon: Tea as at breakfast.

Supper: Tea, one egg, fat roast meat or ham, smoked fish, about 1 oz. bread with plenty of butter, a little cheese and fresh fruit.

Potatoes, sweets and sugars forbidden.

Prot. 102 gms. Fat 85 gms. Carbo. 47 gms.
Cal. 1300.

HIRSHFELD'S DIET.

Breakfast: 2 oz. bread, coffee (no sugar or milk).

Forenoon: 2 eggs.

Dinner: Soup with 2 oz. of rice (uncooked weight), 8 oz. lean meat, boiled or roasted with a little fat.

Afternoon: Black coffee.

Supper: 2 oz. cream cheese, $\frac{1}{2}$ oz. butter, 4 oz. bread.

Prot. 100. Fat 41. Carbo. 50. Cal. 1000.

Prot. 139. Fat 65. Carbo. 67. Cal. 1400.

VON NOORDEN'S DIET.

8 A. M. 3 oz. cold lean meat, 1 oz. bread, cup of tea of coffee with spoonful of milk (no sugar).

10 A. M. 1 egg.

12 M. Cup of strong soup without fat.

1 P. M. Small plate clear soup, 5 oz. lean meat or fish, $3\frac{1}{2}$ oz. potatoes, green vegetables, $3\frac{1}{2}$ oz. fresh fruit.

3 P. M. Cup of black coffee.

4 P. M. 7 oz. fresh fruit.

6 P. M. A glass of skimmed milk.

8 P. M. $4\frac{1}{2}$ oz. cold lean meat with pickles, 1 oz. graham bread, 2-3 spoonfuls of fruit cooked without sugar.

Two glasses of wine are allowed daily.

Prot. 155 gms. Fat 28 gms. Carbo. 112 gms.
Cal. 1366.

OUR DIETS FOR OBESITY (AS USED IN SOME CASES).

Quantity of foods reduced. Moderate amount of all nutrients allowed.

I.

Breakfast: Grapefruit, 1 lump of sugar for coffee, 1 egg, lean broiled ham 2 oz., coffee, 1 oz. cream, 1 slice toast, butter $\frac{1}{8}$ oz.

Dinner: Stock soup, lean roast beef 3-4 oz., mash-
ed potatoes 2-3 oz., cabbage 3-4 oz., lettuce salad (with
lemon juice if desired), raw or stewed fruit 4-5 oz.,
coffee, cream 1 oz., 1 slice toast, 1 lump sugar, $\frac{1}{3}$ oz.
butter.

Supper: Cold chicken 2 oz., small baked potato 3-4
oz., tomato salad, baked apple (medium sized), tea,
1 oz. cream, 1 slice toast, $\frac{1}{3}$ oz. butter, 1 lump sugar.

Approx. Prot. 62. Fat 50. Carbo. 160. Cal. 1335.

II.

Breakfast: Sliced oranges (1 orange), small serv-
ing oatmeal 3 oz., cream 2 oz., sugar 1 teaspoon, 1 egg,
coffee, 1 slice toast, $\frac{1}{3}$ oz. butter.

Dinner: Stock soup, 4-5 oz. roast lamb, 1 medium
size boiled potato, 3-4 oz. spinach, tomato salad, orange
gelatin, 1 lump sugar, coffee, 1 slice toast or bread, 1
oz. cream, $\frac{1}{3}$ oz. butter.

Supper: 1 egg, rice 3 oz. with 1 oz. of cream, fruit
salad, prune whip 4-5 oz., tea with 1 oz. cream, 1 slice
bread, $\frac{1}{3}$ oz. butter.

Prot. 56. Fat 62. Carbo. 156. Cal. 1406.

III.

Breakfast: Apple sauce 3 oz., 1 egg, bacon 2 slices,
1 slice toast, 1-3 oz. butter, coffee, 1 oz. cream, 1 lump
sugar.

Dinner: Stock soup, small broiled steak 3 oz., 2-3
oz. mashed potatoes, stewed squash 2-3 oz., lettuce

salad, custard 4 oz., coffee, 1 oz. cream, 1 lump sugar, 1 slice bread, $\frac{1}{8}$ oz. butter.

Supper: Lean cold ham 2-3 oz., small baked potato 3-4 oz., broiled onions 2-3 oz., raspberries 3-4 oz., tea with 1 oz. cream, 1 lump sugar, 1 slice bread, $\frac{1}{8}$ oz. butter.

Protein 55. Fat 66. Carbo. 150. Cal. 1414.

DIETS IN WHICH FATS AND CARBOHYDRATES ARE
RESTRICTED.

I.

Breakfast: Grapefruit, 1 egg, 2-3 oz. lean meat or fish, 1 slice dry toast, black coffee.

Dinner Meat soup, 4-5 oz. lean roast beef, stewed tomatoes 4-5 oz., spinach 3-4 oz., unsweetened fruit 4-5 oz., black coffee, 1 slice dry toast.

Supper: 3-4 oz. lean cold beef, 2-3 oz. cottage cheese, 1 egg, 4-5 oz. unsweetened fruit, tea, 1 slice dry toast.

Protein 84. Fat 35. Carbo. 90. Cal. 1011.

II.

Breakfast: 3-4 oz. unsweetened fruit, 3-4 oz. lean meat, 1 egg, 1 slice toast or 1 medium roll, black coffee.

Dinner: Meat soup, lean roast lamb 4-5 oz., 4-5 oz. string beans, 3-4 oz. asparagus tips, 4-5 oz. unsweetened fruit, black coffee, 1 slice bread.

Supper: 4-5 oz. lean cold meat, 1 egg, 3-4 oz. French peas, 4-5 oz. unsweetened fruit, tea, 1 slice bread.

Protein 88. Fat 40. Carbo. 110. Cal. 1152.

OBESITY DIETS WITH A MODERATE AMOUNT OF FAT
AND WITH LOW CARBOHYDRATE AND PROTEIN
CONTENT.

Patient With Very Little Exercise.

I.

Breakfast: $\frac{1}{2}$ grapefruit, 1 egg, 2-3 strips bacon, toast 1 slice (25 gms.), coffee, cream 1 oz., sugar 1 teaspoon.

Dinner: Stock soup 4 oz., small broiled squab, 3 oz. Brussels sprouts, 3 oz. mashed potatoes, 2 oz. lettuce salad, 4 oz. gelatin, 1 oz. celery, coffee, 1 oz. cream, bread 1 slice (25 gms.)

Supper: 1 oz. cold ham, 3 oz. small baked potato, 2 oz. sliced tomatoes, 4-5 oz. blackberries, tea, 1 oz. cream, bread 1 slice (25 gms.).

Lunches: 3 P. M., 1 orange; 8 P. M., 1 raw apple.

Protein 50 gms. Fat 40 gms. Carbo. 162 gms.
Cal. 1208.

II.

Breakfast: 4-5 oz. stewed apricots, 1 egg, 2-3 slices bacon, 1 slice toast (25 gms.), coffee, 1 oz. cream, sugar 1 teaspoon.

Dinner: Stock soup 4 oz., 2 oz. scraped beef, 3 oz. mashed potatoes, 3 oz. spinach, 1 oz. watercress salad, 4 oz. junket, coffee, 1 oz. cream, bread 1 slice.

Supper: 30 gms. cold beef, 3 oz. small baked potato, 3 oz. asparagus tips, 4-5 oz. red cherries, tea, 1 oz. cream, 1 slice bread.

Lunches: 3 P. M., 1 orange; 8 P. M., 1 apple.

Protein 50 gms. Fat 44 gms. Carbo. 158. Cal. 1228.

III.

Breakfast: Grapefruit $\frac{1}{2}$, 1 egg, 2-3 slices bacon, coffee, 1 oz. cream, 1 slice toast.

Dinner: Stock soup 4 oz., 2 oz. roast beef, 3 oz. mashed potatoes, $2\frac{1}{2}$ oz. French peas, 2-3 oz. tomato salad, 4 oz. cornstarch pudding, coffee; 1 oz. cream, 1 slice bread.

Supper: 1 egg, 2-3 oz. broiled onions, small baked potato 3 oz., 5 oz. baked apple, 4 oz. cocoa, 1 slice bread.

Lunches: 3 P. M., 1 orange; 8 P. M., 1 raw apple.

Protein 54 gms. Fat 45 gms. Carbo. 165 gms. Cal. 1281.

IV.

Breakfast: $\frac{1}{2}$ grapefruit, 1 egg, 2-3 strips crisp bacon, coffee, 1 oz. cream, 1 slice toast.

Dinner: 4 oz. vegetable soup, 2 oz. roast lamb, 3 oz. mashed potatoes, 3-4 oz. fresh spinach, 2 oz. Romaine salad with lemon, 4-5 oz. sliced pineapple, coffee, 1 oz. cream, 1 slice bread. •

Supper: 1 oz. cold chicken, 3 oz. small baked potato, 3 oz. egg plant, 3-4 oz. strawberries, coffee, 1 oz. cream, 1 slice bread.

Lunches: 3 P. M., 1 orange; 8 P. M., 1 apple.

Protein 50 gms. Fat 42 gms. Carbo. 160 gms. Cal. 1258.

V.

Breakfast: 3-4 oz. apple sauce, 1 egg, 1 oz. lean boiled ham, coffee, cream 1 oz., 1 slice toast.

Dinner: 4 oz. stock soup, 2 oz. roast chicken, 3 oz. mashed potatoes, 3-4 oz. cauliflower, 2 oz. lettuce salad with lemon, 3-4 oz. stewed peaches, coffee, 1 oz. cream, 1 slice bread, 5 gms. butter.

Supper: 1 egg, 5 gms. (1 tp.) butter, 1½ oz. cottage cheese, 3 oz. asparagus tips, 2 oz. tomato salad, 5 oz. baked apple, coffee, 1 oz. cream, 1 slice toast.

Lunches: 8 P. M., 1 raw apple.

Protein 57 gms. Fat 43 gms. Carbo. 154 gms.
Cal. 1222.

VI.

Breakfast: ½ grapefruit, 1 egg, 1 small perch, coffee, 1 oz. cream, 1 slice toast, 1 teaspoon butter (5 gms.).

Dinner: 4 oz. vermicelli soup, small steak 2½ oz., 3 oz. mashed potatoes, 3-4 oz. stewed tomatoes, 1 oz. watercress salad with lemon, 4 oz. fruit gelatin, coffee, 1 oz. cream, 1 slice bread, 1 tp. butter.

Supper: 1 oz. cold beef, 3 oz. baked potato, 3-4 oz. broiled onions, 4-5 oz. white cherries, coffee, 1 oz. cream, 1 slice bread, 1 tp. butter.

Lunches: 3 P. M., 1 orange. 8 P. M., 1 apple.

Protein 55 gms. Fat 45 gms. Carbo. 150 gms.
Cal 1221.

VII.

Breakfast: 1 orange, 1 egg, 2-3 oz. bacon, coffee, cream 1 oz., 1 slice toast.

Dinner: 6 oz. chicken soup, 2 oz. roast beef, 3 oz. mashed potatoes, 3-4 oz. beets, 1 oz. celery, 2 oz. fruit salad, 4 oz. tapioca pudding, coffee, $\frac{1}{2}$ oz. cream, 1 slice bread, 1 tp. butter.

Supper: 1 oz cold ham, 3 oz. baked potato, 2 oz. lettuce salad with lemon, 4-5 oz. raspberries, 1 slice bread, 1 tp. butter, coffee, $\frac{1}{2}$ oz. cream.

Lunches: 3 P. M., 1 orange; 8 P. M., 1 apple.

Protein 55 gms. Fat 40 gms. Carbo. 175 gms.
Cal. 1280.

CHAPTER XIV.

ANEMIA, SCURVY AND GOITRE

ANEMIA

It is necessary briefly to discuss anemia as a primary and a secondary condition. When anemia is secondary the underlying disease must be treated and the diet prescribed to suit the demands of the primary disturbance. We cannot treat the anemia which accompanies nephritis in the same way as we treat the anemia of acute articular rheumatism; in nephritis the very nature of the disease imposes limitations beyond which we dare not trespass in any effort to increase the blood (see page 105); in rheumatism no such barrier to our progress exists. Where we can prescribe for the anemia itself we order a well balanced full diet in which protein and the fresh vegetables and fruits play an important role. The medicinal use of iron or of arsenic usually indicated can be supplemented by the foods richer in iron.

The iron content of some foods can be seen from the two tables given below.

Milligrams of iron in 100 grams fresh material. (Bouissingault).

Meat	37.5	Potatoes	6.6
Lentils	8.3	Egg	5.7
Fish	7.5	Wheat bread	4.8
White beans	7.4	Veal	2.7

Milligrams of iron in 100 grams dried substance. (Bunge).

White of egg.....	Trace	Black cherries	7.2
Rice	1.0-2.0	White beans	8.3
Barley	1.4-1.5	Carrots	8.6
Flour	1.6	Wheat bran	8.8
Cow's milk	2.3	Strawberries	8.6-9.3
Figs	3.7	Linseed	9.5
Raspberries	3.9	Unpeeled almonds	9.5
Hazelnut kernels	4.3	Red cherries	10
Barley	4.5	Apples	13
Cabbage (inside)	4.5	Dandelion leaves	14
Rye	4.9	Cabbage (outside).....	17
Peeled almond	4.9	Beef	17
Wheat	5.5	Asparagus	20
Potatoes	6.4	Egg yolk	10-24
Peas	6.2-6.6	Spinach	33-39

Both these tables are copied from Friedenwald and Ruhräh,

But as we have already freely discussed under tuberculosis, in giving a full diet we must consider the patient's stomach and intestines. A full diet given to a stomach unable to digest it is of no avail to the patient, and for that reason any special condition of the stomach or intestine should be looked for and treated.

PRIMARY PERNICIOUS ANEMIA

In treating pernicious anemia it must be borne in mind that often the disease is accompanied by an absence of gastric juice and by symptoms of intestinal indigestion. For these reasons diet forms an important part of treatment, but owing to the accompanying gastro-intestinal disturbances it can not always be directed to the anemia. The patient whose stomach rebels at meat should not be told to eat raw beef, no

matter how much theoretical good can be obtained from raw beef; nor should the carbohydrates be forced on another patient if they produce flatulence and discomfort. When a patient with pernicious anemia is in the remission stage, that is when the disease may be said to be active and acute, the food problem is to give him as nourishing a diet as he will eat and digest. If he can eat a full diet so much the better, but if he has achylia gastrica we must feed him for the stomach condition.

Diet for Achylia Gastrica.

Soups: Meat soups and cream soups.

Meats: Finely divided beef, lamb and chicken.

Vegetables: Strained peas, carrots, spinach, cauliflower, celery, corn, squash, lima beans, parsnips, potatoes. .

Desserts: Soft milk puddings, strained fruits, gelatins, custards.

Breads: Toast, zweibach and crackers.

Beverages: Weak tea or coffee, occasionally cocoa, milk, vichy, buttermilk and fruitades.

Cereals: Strained cereals of all kinds.

Eggs: Soft-cooked, poached or boiled.

Fats: Butter, cream in moderate amounts.

Then as soon as improvement begins to be manifest the quantity and quality of the food must be changed; and in arriving at a full diet special attention should be paid to the value of the animal proteins as blood producers. In a diet for anemia, either sec-

ondary or primary, more protein than is usually embodied in a normal diet should be prescribed.

DIET FOR ANEMIA.

Soups: All kinds of meat and cream soups.

Meats: Beef, lamb, chicken, squab, fish, oysters, bacon, ham.

Eggs: In any form except fried or hard-boiled.

Vegetables: Green and fresh vegetables in abundance, spinach, lettuce, carrots, lentils, peas, beans, etc.

Cereals: Oatmeal, wheat, corn and rice cereals.

Fruits: Plenty of fresh sweet fruits, stewed fruits.

Desserts: Soft puddings, ices and ice creams, gelatins, fruits.

Beverages: Milk, cocoa, weak tea, grapejuice and other sweet fruit juices.

Fats: Butter, cream, olive oil.

Breads: Wheat, rye, corn, graham breads, crackers, zweibach.

I.

Breakfast: Sliced oranges, oatmeal with cream, 1 egg, bacon, cocoa, toast and butter.

Dinner: Cream of pea soup, broiled tenderloin steak, mashed potatoes, fresh spinach, watercress salad with lemon juice and olive oil, ice cream, cocoa, bread and butter.

Supper: Oyster stew, 1 egg, baked sweet potato, chicken salad, baked apple, cocoa, bread and butter.

Lunches: 10 A. M. Scraped beef sandwich, 4 oz.
milk.

3 P. M. Malted milk egg-nog.

8 P. M. Milk or hot chocolate 6 oz.

II.

Breakfast: Grapefruit, 1 egg, bacon, farina with cream, cocoa, toast and butter.

Dinner: Stock soup, rare roast beef, jelly, mashed potatoes, French peas, French endive with lemon juice and olive oil, snow pudding, cocoa, bread and butter.

Supper: Lamb chops, baked potato, lettuce salad with lemon juice and olive oil, strawberries, cocoa or milk, bread and butter.

Lunches: 10 A. M. Fruit juice or fruitade.

3 P. M. Egg-nog.

III.

Breakfast: Apple sauce, wheatena with cream, broiled perch, 1 egg, cocoa, toast and butter.

Dinner: Lentil soup, scraped beef balls, mashed potatoes, glazed carrots, celery hearts, tomato salad with mayonnaise, grape gelatin, cocoa or weak tea, bread and butter.

Supper: Poached eggs, creamed potatoes, broiled onions, shredded lettuce with lemon juice and olive oil, sliced pine apple, cocoa or weak tea, bread and butter.

Lunches: 10 A. M. Egg-nog.

3 P. M. Fruit juice.

8 P. M. Milk 6 oz.

SCURVY

Scurvy is a disease due to the absence in the food of certain elements found in *fresh* fruits, vegetables and meats. Formerly a common invader of camps and prisons, an unwelcome guest on long boat journeys, a dreaded accompaniment of exploring parties it has retreated before the advance of modern hygiene and preventive medicine and is a comparatively rare disease. Occasionally, however, it is still seen in infants improperly fed, or in adults whose diets for reasons of illness or ignorance have been poorly chosen. We have seen typical scurvy in a rich farmer whose meals consisted almost entirely of tea, biscuits and canned goods. The cure is complete when fresh vegetables, fresh fruits and fresh meat are added to the diet.

GOITRE

Just a few words are necessary concerning the diet in goitre. In the simple enlargement of the thyroid gland so frequently seen in certain geographic locations, as for instance along the Great Lakes, not infrequently a considerable reduction in the goitre will result from the rule "*drink no water unless it is boiled or distilled.*" We know no special dietary indications for this condition.

Exophthalmic goitre has been the subject of much metabolic study and the center of more dietary discussion. An increased metabolism has been proved as a fact, but the use of special forms of diet usually has been prompted by theory. In our experience we have

not satisfied ourselves that *any particular form* of food was either distinctly beneficial or distinctly harmful, and we have merely advised a plentiful diet. DuBois in the most recent metabolic study of this disease has shown that an exophthalmic goitre patient requires from $1\frac{1}{2}$ to 2 times as much food as a normal person. He was unable to show a particularly beneficial effect from any of the food elements.

The theory has been advanced by some physicians that goitre may be benefited by a lacto-vegetarian diet. In this diet all flesh foods are prohibited and vegetables and milk and eggs make up the diet. We have no evidence of benefit derived from this diet, but in some cases it may be beneficial and worthy of a trial.

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